Prepared for
Public Transport Authority
ABN: 61 850 109 576

Environmental Assessment Report

METRONET on Swan Ferry Service Expansion: Perth to Applecross

25-Aug-2025
Ferry Expansion Project

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Environmental Assessment Report

METRONET on Swan Ferry Service Expansion: Perth to Applecross

Client: Public Transport Authority

ABN: 61 850 109 576

Prepared by

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1.0 Introduction

1.1 Project Overview

The Public Transport Authority (PTA) is expanding the existing Swan River ferry service which currently operates between Elizabeth Quay and South Perth.

The METRONET on Swan Ferry Service Expansion: Perth to Applecross (the Project) involves:

- Expanding the ferry fleet to include five new electric ferries.
- Expanding boarding facilities at the existing Elizabeth Quay terminal.
- Construction of new ferry terminals at Matilda Bay and Applecross.
- Removing affected boat moorings from Matilda Bay.
- Installing electric charging infrastructure, public ablution facilities and associated landscaping at Matilda Bay foreshore.
- Modifying road access at Matilda Bay terminal (Hackett Drive) including a new roundabout, bus stands and parking bays.
- Operating the new ferry service between Elizabeth Quay, Matilda Bay and Applecross.
- Berthing of new ferries at the redeveloped Barrack Square Jetty 1 facility (an existing Department of Transport and Major Infrastructure (DTMI) project).

Subject to necessary approvals, the proposed development of the Elizabeth Quay, Matilda Bay and Applecross terminals is scheduled for completion in time for the new ferry service to commence at the end of 2027.

1.1.1 Development Approvals

Development approval is being sought via separate applications for each of the proposed ferry terminal sites (Figure 1 and Figure 2).

The proposed development at Elizabeth Quay, Matilda Bay and Applecross is subject to the Metropolitan Region Scheme (MRS) established under the *Planning and Development Act 2005* and applications for development approval will be determined by the Western Australian Planning Commission (WAPC).

The Applecross and Matilda Bay locations intersect with the Development Control Area (DCA) established under the *Swan and Canning Rivers Management Act 2006* (SCRM Act). The Swan River Trust (SRT) will provide advice to the WAPC to assist in the determination of development approval at these locations.

1.2 Report Purpose

This report has been prepared to support applications for development approval for the ferry terminals and associated infrastructure proposed at Elizabeth Quay, Matilda Bay and Applecross (Figure 2a-c).

Under the MRS, an application for development approval must be accompanied by any specialist studies (including environmental) that the WAPC may require in support of the application. When considering an application for development approval, the WAPC must have regard to various matters to the extent they are of State or regional importance, including:

- State planning policies.
- the cultural significance of any place or area affected by the development.
- the likely effect of the proposal on the natural environment, and any proposed environmental protection or mitigation measures.
- the preservation of the amenity of the locality.

- whether adequate provision has been made for the landscaping of the land to which the application relates, and whether any trees or other vegetation should be preserved.
- whether the proposal is likely to cause soil erosion or land degradation.
- advice of the SRT, in relation to proposed development within the DCA.

In response to these matters, this report provides an overview of relevant legislation and policies, the existing environment in the different project locations, potential impacts of the development on the environment, and proposed management of environmental impacts.

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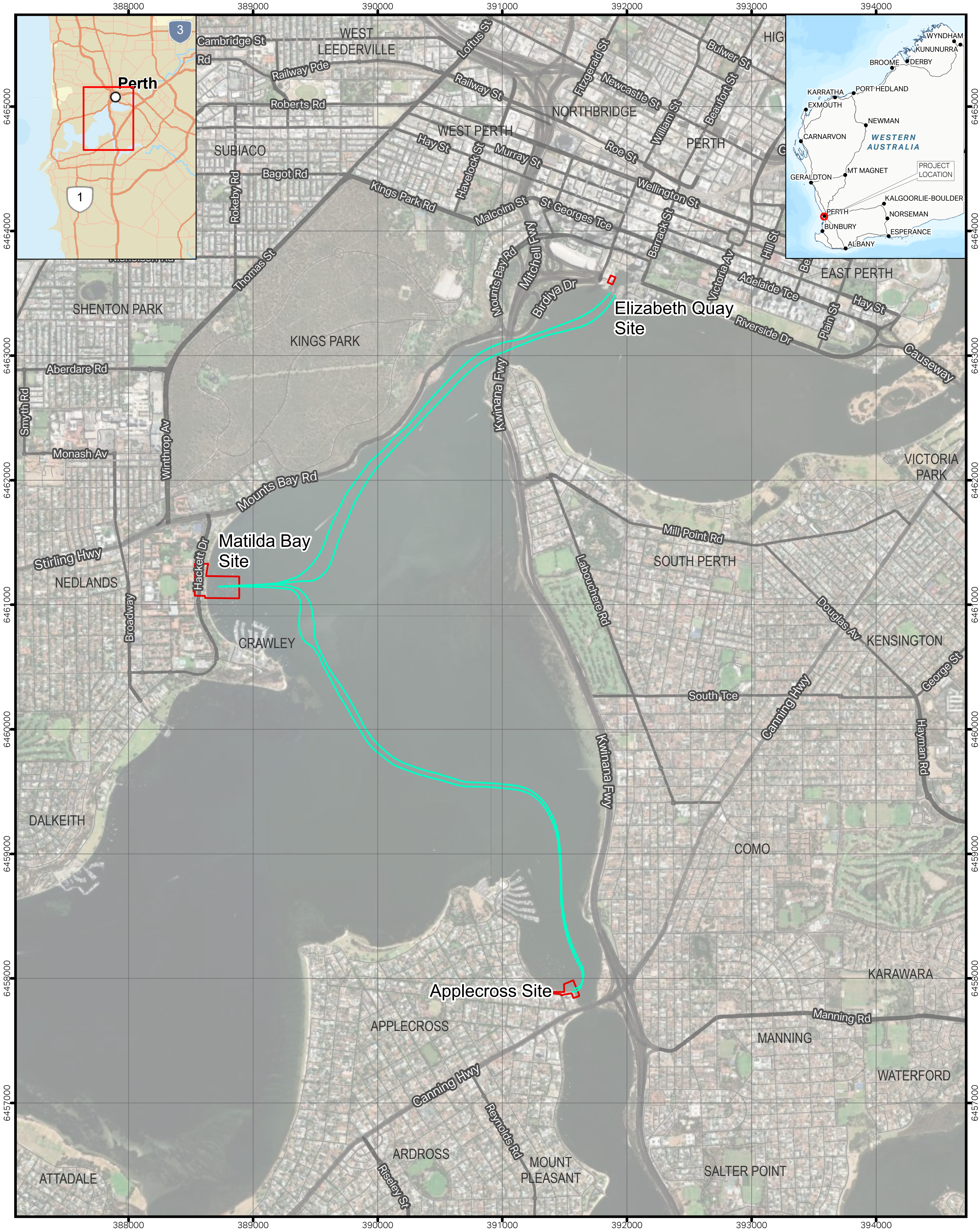
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KUNUNURRA
BROOME
DERBY
KARRATHA
PORT HEDLAND
EXMOUTH
NEWMAN
CARNARVON
WESTERN AUSTRALIA
PROJECT LOCATION
GERALDTON
MT MAGNET
KALGOORLIE-BOULDER
PERTH
NORSEMAN
BUNBURY
ESPERANCE
ALBANY
Elizabeth Quay Site
Matilda Bay Site
Applecross Site
Cambridge St
WEST LEEDERVILLE
Railway Pde
Loftus St
Railway St
Roberts Rd
Fitzgerald St
Newcastle St
Bulwer St
Beaufort St
NORTHBRIDGE
William St
WEST PERTH
Hay St
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Plain St
Causeway
Thomas St
Mounts Bay Rd
Mitchell Fwy
Birdiya Dr
SHENTON PARK
KINGS PARK
Aberdare Rd
Smyth Rd
Winthrop Av
Monash Av
Kwinana Fwy
Mounts Bay Rd
VICTORIA PARK
Stirling Hwy
Hackett Dr
NEDLANDS
Broadway
Mill Point Rd
SOUTH PERTH
Labouchere Rd
Douglas Av
KENSINGTON
CRAWLEY
South Tce
George St
Canning Hwy
Hayman Rd
Kwinana Fwy
DALKEITH
COMO
KARAWARA
Manning Rd
APPLECROSS
MANNING
WATERFORD
Canning Hwy
Reynolds Rd
ARDROSS
MOUNT PLEASANT
SALTER POINT
Riseley St
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LEGEND

🟥 Development Envelopes

Indicative Ferry Routes

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Site Location

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure

1

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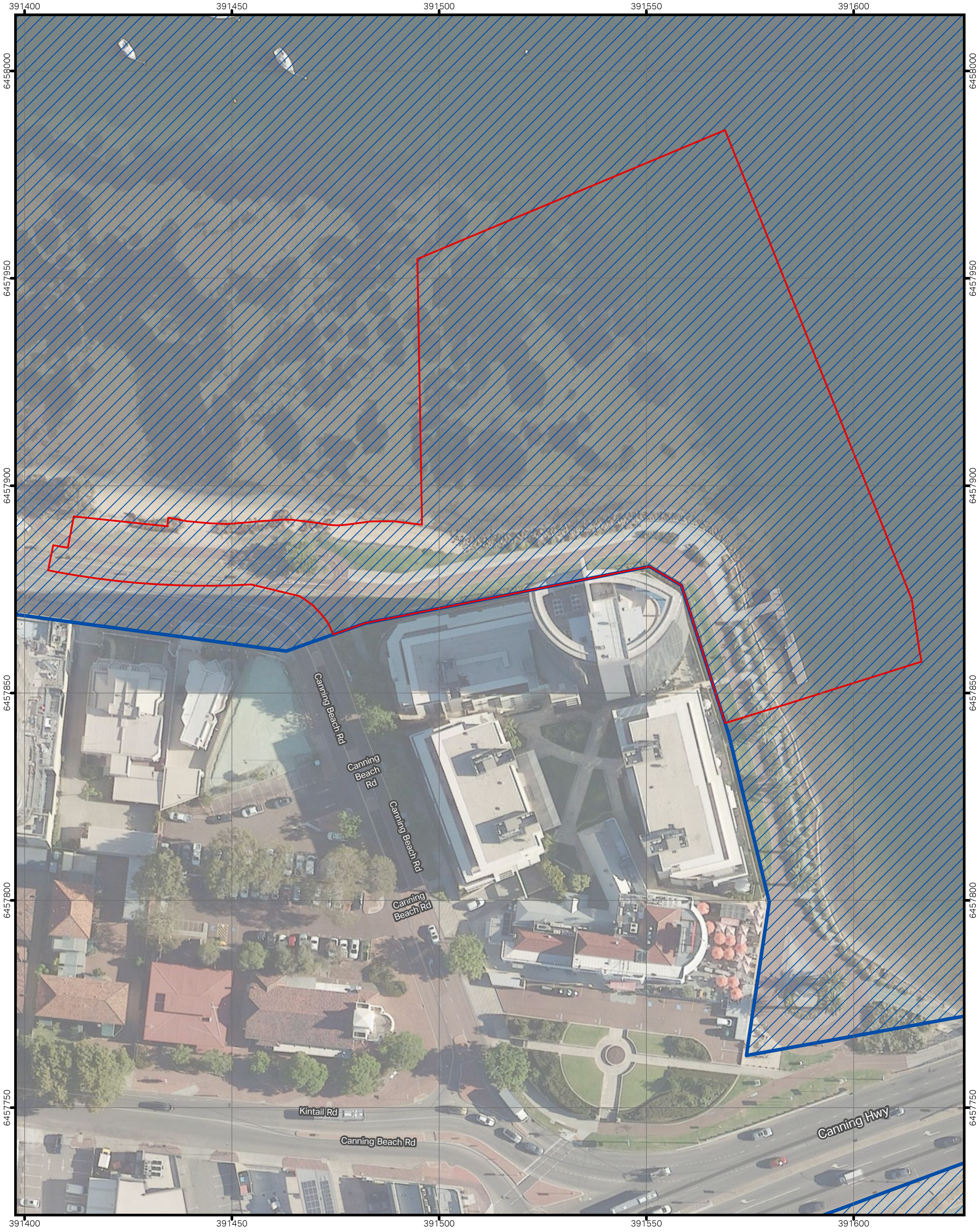
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LEGEND
🟥 Development Envelope
▨ Swan and Canning River - Development Control Area (DBCA-028)

Development Area: Applecross Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
2a

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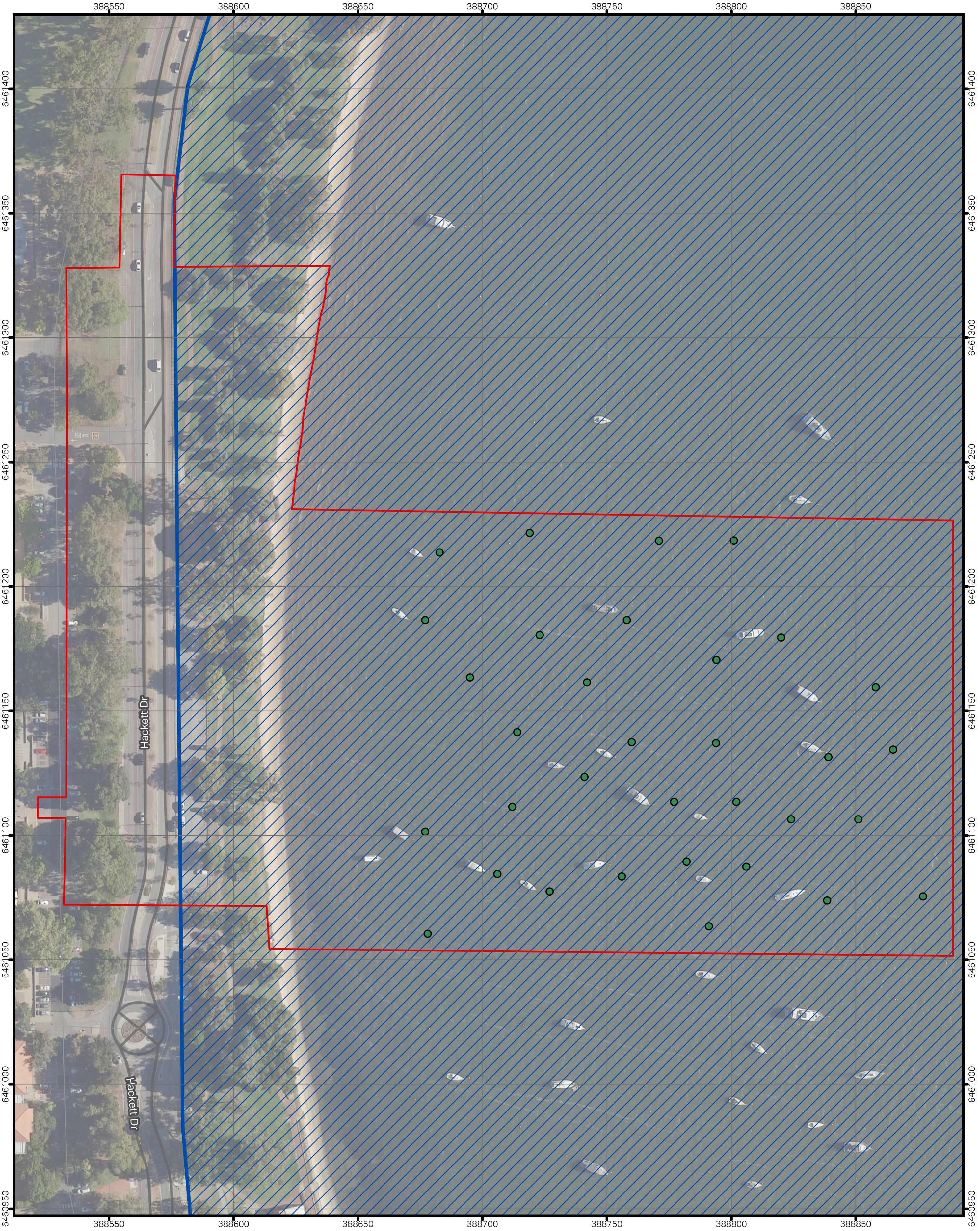
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LEGEND
- ▭ Development Envelope
- ▨ Swan and Canning River - Development Control Area (DBCA-028)
- ● Mooring Points (DoT, 2025)

Development Area: Matilda Bay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
2b

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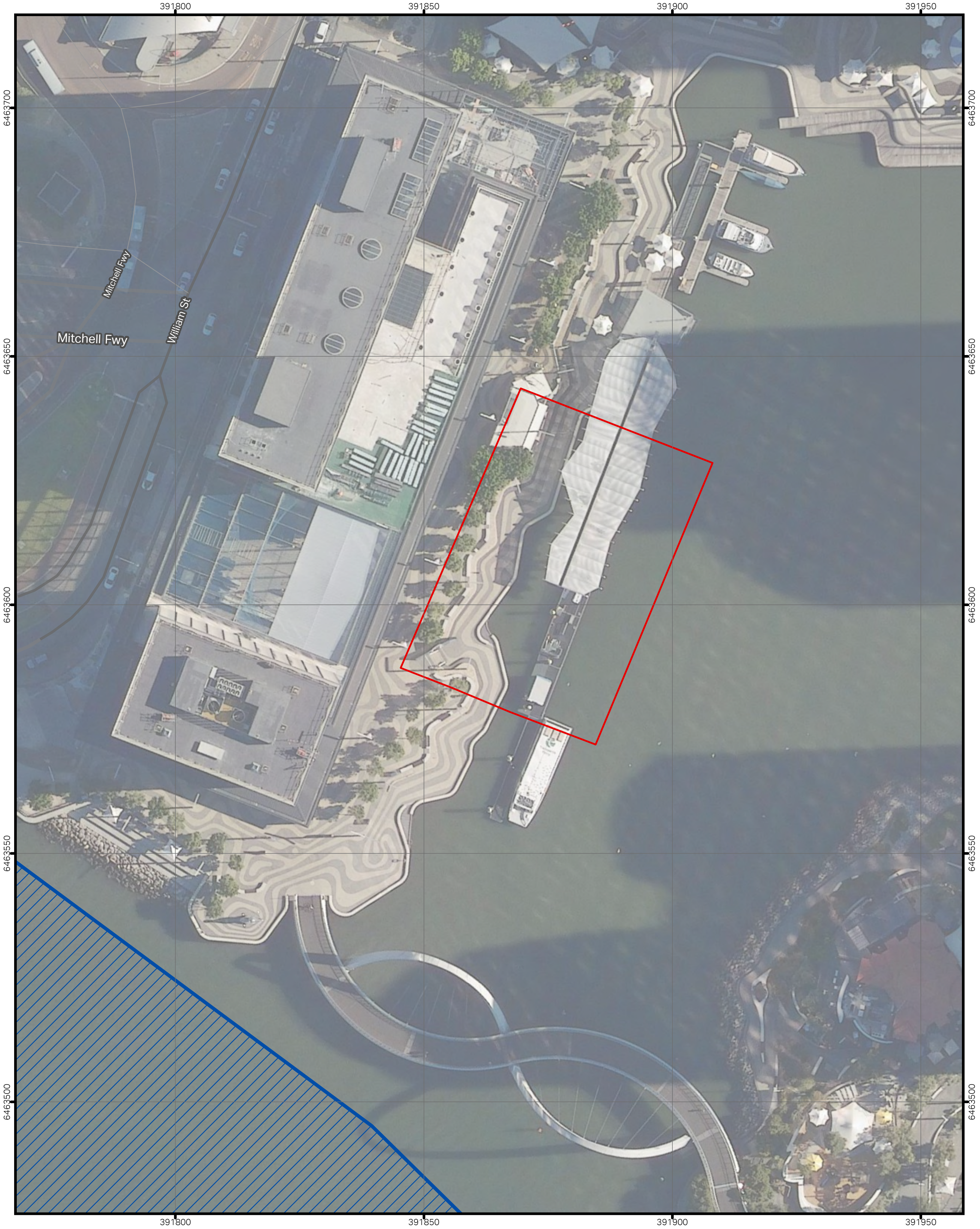

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LEGEND

🟥 Development Envelope

▨ Swan and Canning River - Development Control Area (DBCA-028)

Development Area: Elizabeth Quay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
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2.0 Relevant Legislation

2.1 Swan and Canning Rivers Management Act 2006

The SCRM Act applies to the Swan Canning Riverpark, which includes the rivers themselves, adjacent foreshore areas, and designated DCA where specific planning and environmental controls are enforced.

The Act was established to:

- Protect and enhance the ecological and community values of the Swan and Canning Rivers.
- Provide a coordinated management framework across government agencies.
- Ensure sustainable development and land use around the river systems.

The Swan River Trust (SRT) operates as strategic advisory body under the Department of Biodiversity, Conservation and Attractions (DBCA) for the application of the SCRM Act and are responsible for determining or advising on any applications for development within the DCA.

The Swan Canning River Protection Strategy was introduced in 2015 and is a statutory requirement under the SCRM Act. It provides a 10-year framework for collaborative management involving Traditional Owners, local governments, and community groups.

The Applecross and Matilda Bay locations are within the Swan Canning Riverpark DCA and are therefore subject to the provisions of the SCRM Act in consideration of the River Protection Strategy. As the WAPC is the determining Authority for the proposed development applications, they must be referred by the WAPC to the SRT for advice.

Consequently, this report has considered the relevant policies, plans and guidelines that inform the SRT's assessment of land use and development proposals within, abutting, or impacting the Swan and Canning Rivers (refer to Section 4.0 below).

2.2 Environmental Protection Act 1986

The *Environmental Protection Act 1986* (EP Act) is Western Australia's primary legislation for environmental management and protection. It provides the legal framework for preventing, controlling, and abating pollution and environmental harm, and for conserving and enhancing the environment across the state.

To obtain primary approvals and comply with the *Environmental Protection Act 1986* (EP Act), development proposals with potential significant environmental impacts are either referred under Part IV (Section 38) of the EP Act, or if the impacts are limited to native vegetation, dealt with via Part V (Division 2) of the Act.

2.2.1 Environmental Impact Assessment

The legal basis for Environmental Impact Assessment (EIA) in Western Australia is contained in Part IV of the EP Act. Guidance documentation for approvals and legislative requirements is provided by the Environmental Protection Authority (EPA) for many of the environmental requirements for this Project. Each of these guidance documents is linked to the primary guidance document 'Statement of environmental principles, factors, objectives and aims of EIA' (EPA 2023).

The Project will be referred to the EPA under Section 38 (Part IV) of the EP Act. The EPA will decide whether the Project is likely to result in a significant impact to key environmental factors and objectives that would warrant formal assessment under Part IV, and if so, will formally assess the Project's impacts and the adequacy of any proposed mitigation measures.

2.2.2 Clearing of Native Vegetation

If the EPA decides not to assess the Project a Native Vegetation Clearing Permit may be required under Part V Division 2 of the EP Act. This would consider impacts in accordance with the Ten Clearing Principles as outlined in 'A guide to the assessment of applications to clear native vegetation Under Part V Division 2 of the *Environmental Protection Act 1986* (2014)'.

Terrestrial vegetation is discussed further in Section 3.4 and native aquatic vegetation is discussed in Section 3.10.

2.2.3 Environmental Noise

The *Environmental Protection (Noise) Regulations 1997* operate as a prescribed standard under the EP Act and set limits on noise emissions. The Regulations address noise passing from one premises to another, including noise from public places and impacts to adjacent premises.

The Noise Regulations do not apply to noise as a result of construction works carried out between 0700 hrs and 1900 hrs on any day which is not a Sunday or public holiday if it can be shown that:

- construction works are carried out in accordance with the controls of environmental noise practices set out in Section 4 of *AS 2436-2010, Guide to Noise and Vibration Control on Construction, Maintenance and Demolition Sites*;
- the equipment used on the construction site is the quietest reasonably available; and
- the works are undertaken in accordance with a noise management plan.

Environmental noise is discussed further in Section 3.16.

2.3 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places (among others), which are defined as ‘Matters of National Environmental Significance’ (MNES).

The EPBC Act protects listed MNES, and it is an offence to implement any action that would have a significant impact on any MNES. If an action is likely to have a significant impact upon a protected matter, then it must be referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

MNES are discussed further in Section 3.5.1

2.4 Aboriginal Heritage Act 1972

The *Aboriginal Heritage Act 1972* (AH Act) protects all Aboriginal heritage sites in Western Australia. Consent is required from the Minister for Aboriginal Affairs for any activity that will negatively impact an Aboriginal heritage site.

There are different types of approval under the AH Act and the *Aboriginal Heritage Regulations 1974*. Approval may be required from either the Minister for Aboriginal Affairs or the Registrar of Aboriginal Sites for any activity which may harm an Aboriginal site. There are four types of authorisations:

- Section 18 consent – for more significant impacts and harm to Aboriginal sites
- Section 16 authorisation – for excavation purposes (generally related to research)
- Regulation 7 approval – to bring plant and equipment to an Aboriginal site
- Regulation 10 consent – for more minor activities and impacts.

Aboriginal heritage is discussed further in Section 3.14.

2.5 Conservation and Land Management Act 1984

The *Conservation and Land Management Act 1984* (CALM Act) aims to provide a framework for the use, protection and management of certain public lands and waters, as well as the flora and fauna within them. The Act establishes several statutory bodies, including the Conservation Commission of Western Australia, the Marine Parks and Reserves Authority, and the Marine Parks and Reserves Scientific Advisory Committee, defining their roles and responsibilities.

The primary purposes of the CALM Act includes:

- Conservation: Protecting and conserving the natural environment, including biodiversity, ecosystems, and cultural heritage.
- Sustainable Management: Ensuring the sustainable use of natural resources, such as forests and marine areas.
- Public Enjoyment and Education: Facilitating public access to natural areas for recreation and education while ensuring their protection.
- Research and Monitoring: Supporting scientific research and monitoring to inform conservation and management practices.

DBCA is being consulted regarding any necessary approvals that may be required under the CALM Act. CALM Act reserves affected by the Project are discussed in section 3.6.

2.6 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) aims to protect biodiversity by providing for the listing of threatened species, Threatened Ecological Communities (TECs) and threatening processes. The Act regulates the taking and disturbance of fauna and flora and modification of TECs.

BC Act species are further discussed in Section 3.5.1 and Section 3.11.

It is not expected that there will be significant impact to any threatened species or TECs through the development and implementation of the Project.

2.7 Rights in Water and Irrigation Act 1914

The *Rights in Water and Irrigation Act 1914* (RIWI Act) provides the framework for managing and allocating water resources in Western Australia, including surface water and groundwater.

The Project is not located within a proclaimed surface water area, therefore a permit is not required under the RIWI Act. Although the Project lies within the Perth Groundwater Proclamation Area, it is not expected that a groundwater licence will be required (DWER, 2022b).

3.0 Existing Environment

3.1 Location

The Project is located on the Swan-Canning Estuary and adjacent foreshore, situated within the Swan coastal plain region of Western Australia. The Swan-Canning Estuary is approximately 50 km long and covers an area of approximately 55 km^2. It is a microtidal system supplied with freshwater from the Swan and Canning rivers, while marine water is supplied from a narrow entrance channel at Fremantle that opens into two basins (Melville Water and Perth Water). During summer months, a salt wedge extends upstream into the Swan and Canning rivers, up to approximately 29 and 13 km upstream from their entry points into Melville Water, respectively. Although the majority of the estuary is shallow (less than 2 m in depth), it reaches a maximum depth of approximately 20 m in the entrance channel (Valesini, et al., 2014).

3.2 Climate

The climate in the South-West region of Western Australia is temperate - Mediterranean with mild wet winters and hot dry summers. The south-west is influenced by winter frontal systems, troughs and cut-off lows associated with westerly winds resulting in high winter rainfall and low summer rainfall (DWER, 2024). Precipitation occurs predominantly during the winter months, with the possibility of some summer storms, with ~80% of rainfall occurring between June and September (Hodgkin, E P; Hesp, P, 1998; Hallett, et al., 2017). Average temperatures in Perth range from 17.7°C to 31°C in summer and 8.4°C to 19.1°C in winter. (BoM, 2025)

3.3 Geology and Soils

The terrestrial components of the proposed development are situated on the Spearwood System in the Perth Coastal Zone, which occurs within the Swan Province. The Spearwood System is described as sand dunes and plains, with yellow deep sands, pale deep sands and yellow/brown shallow sands.

One soil system occurs within the project areas, called the EnvGeol S14 Phase (211Sp). It is described as pale grey to white sand, medium-grained sub-angular, quartz and feldspar, well sorted, abundant whole and broken bivalves and gastropod shells of alluvial origin (DPIRD, 2022).

3.3.1 Acid Sulfate Soils (ASS)

Acid Sulfate Soil (ASS) risk mapping indicates that all three ferry terminal sites contain areas classified as High to Moderate risk of ASS. For the Matilda Bay and Applecross ferry terminal sites, the High to Moderate risk areas are located within the river, with the terrestrial components mapped as Moderate to Low risk (DWER, 2017). The Elizabeth Quay site is classified as High to Moderate risk.

High to Moderate risk of ASS indicates that there is a high to moderate risk of disturbing ASS within 3 metres of natural soil surface which could be disturbed by most land development activities including:

- earthworks involving soil disturbance more than 100 cubic metres.
- dewatering or soil drainage.

Moderate to Low risk of ASS indicates that there is a low to moderate risk of disturbing ASS within 3 metres of the natural surface but a high to moderate risk of ASS occurring beyond 3 metres that could be disturbed by soil excavation and dewatering associated with infrastructure works including:

- works involving lowering of the watertable (temporary or permanent).
- earthworks extending deeper than 3 metres below the natural ground surface.
- works within 500 metres of wetlands.

There is a potential risk of exposing ASS during construction works for the Project, particularly during piling and earthwork activities.

In accordance with the Acid Sulfate Soil Planning Guidelines (WAPC, 2008), an ASS investigation should be carried out if any dewatering or drainage works (either temporary or permanent), or the excavation of 100 cubic metres or more of soil is proposed on land depicted as being wholly or partially within an area of high to moderate acid sulfate soils.

Acid Sulfate Soil risk mapping is shown on Figure 3a-c with proposed management of ASS outlined in Table 3 and in Section 6.0.

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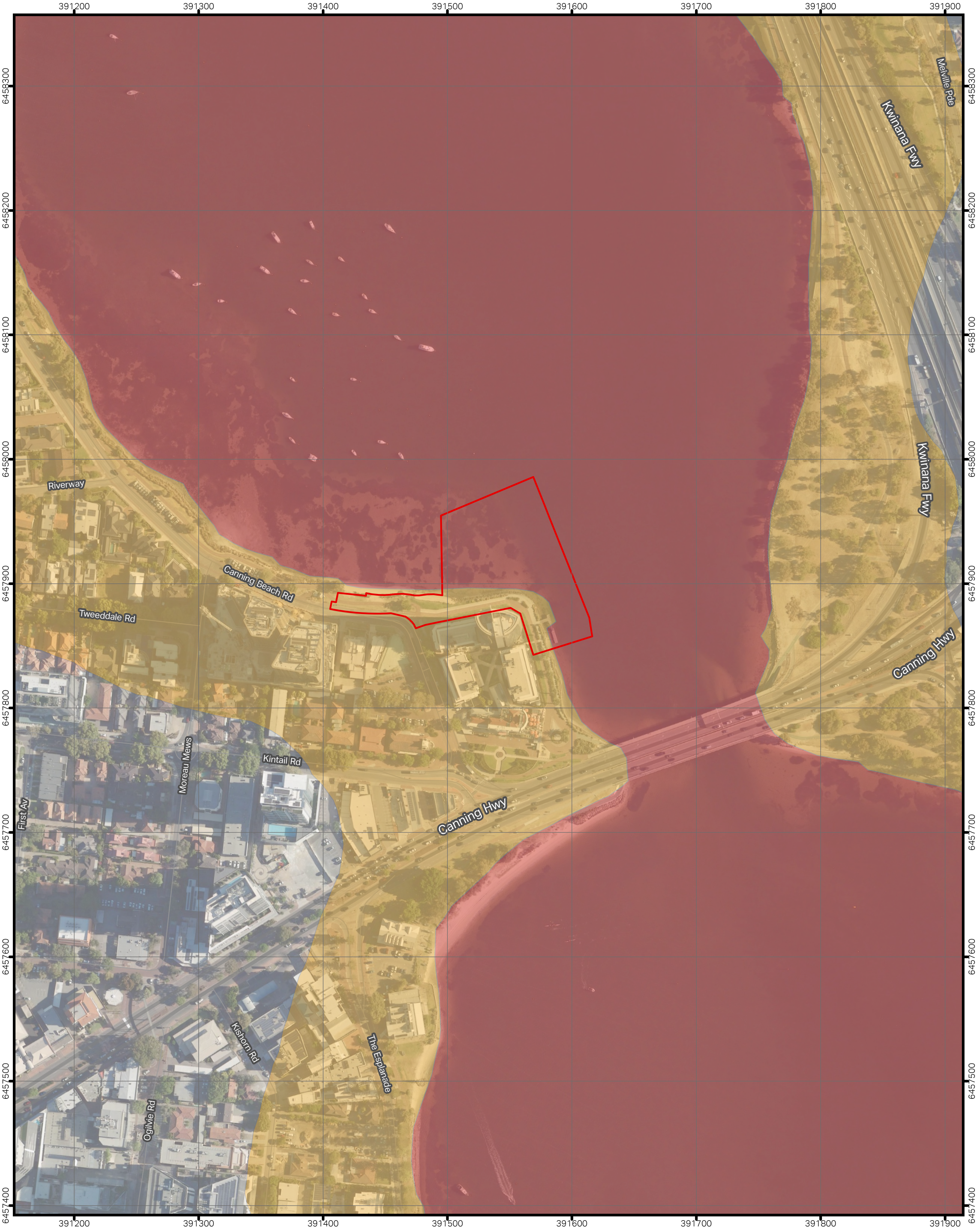
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Canning Hwy
Kintail Rd
Moreau Mews
First Av
Canning Hwy
Kishorn Rd
The Esplanade
Ogilvie Rd

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LEGEND

▭ Development Envelope

Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)

🟥 1 - High to moderate risk of ASS occurring within 3m of natural soil surface

🟨 2 – Moderate to low risk of ASS occurring within 3m of natural soil surface but high to moderate risk of ASS beyond 3m of natural soil surface

Acid Sulfate Soil Mapping: Applecross Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
3a

A4 size

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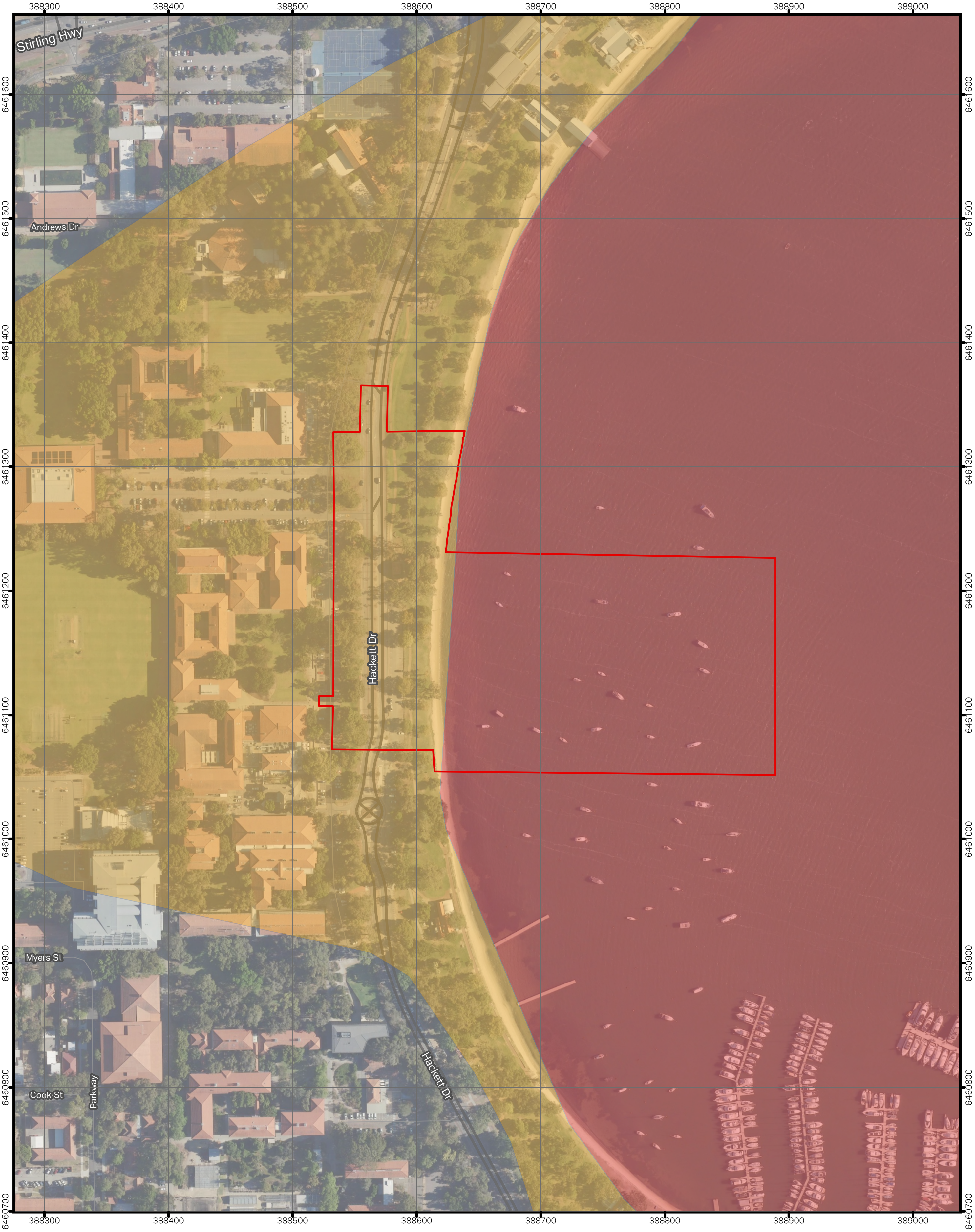
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Hackett Dr
Myers St
Cook St
Parkway
Hackett Dr

Acid Sulfate Soil Mapping: Matilda Bay Site

LEGEND

🟥 Development Envelope

Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)

🟥 1 - High to moderate risk of ASS occurring within 3m of natural soil surface

🟨 2 – Moderate to low risk of ASS occurring within 3m of natural soil surface but high to moderate risk of ASS beyond 3m of natural soil surface

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PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
3b

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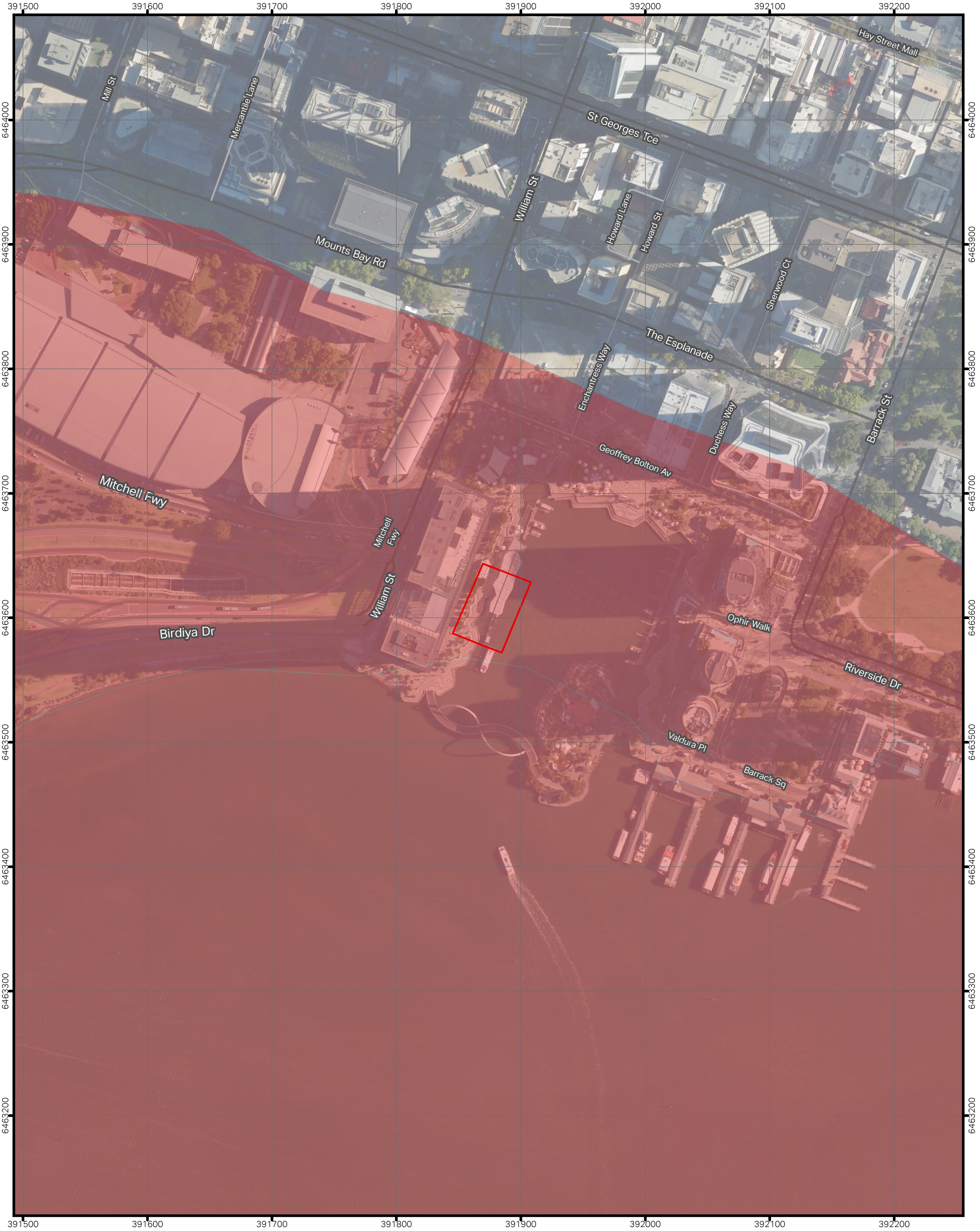
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William St
Mounts Bay Rd
Howard Lane
Howard St
Sherwood Ct
The Esplanade
Enchantress Way
Duchess Way
Barrack St
Geoffrey Bolton Av
Mitchell Fwy
Mitchell Fwy
William St
Ophir Walk
Birdiya Dr
Riverside Dr
Valdura Pl
Barrack Sq

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Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)

🟥 1 - High to moderate risk of ASS occurring within 3m of natural soil surface

Acid Sulfate Soil Mapping: Elizabeth Quay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
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3.4 Terrestrial Vegetation and Flora

3.4.1 Vegetation

The Elizabeth Quay, Applecross and Matilda Bay ferry terminal sites occur within the Perth subregion of the Swan Coastal Plain bioregion. The Swan Coastal Plain bioregion is described by (IBRA7, 2012) as low lying coastal plain, mainly covered with woodlands. It is dominated by Banksia or Tuart on sandy soils, Casuarina on outwash plains, and paperbark in swampy areas.

A biological survey of the ferry terminal sites, including a desktop assessment and a basic reconnaissance flora and vegetation survey was completed by GHD on 7 and 27 March 2025 (GHD, 2025) (Appendix A). One remnant native tree (*Eucalyptus rudis*) was identified in the Black Cockatoo habitat assessment (Section 3.5.1).

At the Applecross ferry terminal site, three vegetation types were recorded, including Replanting, Wetland/Shoreline, and Parkland with Planted Trees. The remaining areas were recorded as Cleared. None of the vegetation types were assigned a vegetation condition, as they were not representative of native vegetation. No EPBC Act or BC Act listed TECs, or DBCA listed Priority Ecological Communities (PECs) were recorded (GHD, 2025).

The Matilda Bay ferry terminal site contains three vegetation types including Revegetation and Re-planting, Parkland, and Wetland/Waterline Shore-bank, with remaining areas recorded as Cleared. None of the vegetation types were assigned a vegetation condition as they were not representative of native vegetation. No EPBC Act or BC Act listed TECs, or DBCA listed PECs were recorded (GHD, 2025).

At the Elizabeth Quay ferry terminal site one vegetation type was recorded within the project are: Replanting. The remaining areas were recorded as Cleared. None of the vegetation types were assigned a vegetation condition, as they were not representative of native vegetation. No EPBC Act or BC Act listed TECs, or DBCA listed PECs were recorded (GHD, 2025).

Terrestrial vegetation mapping is shown in Figure 4.

3.4.2 Flora

Results from a desktop assessment indicated that there are 18 threatened flora species known within 5 km of the ferry terminal sites (GHD, 2025). Of these, none were assessed as having potential to occur due to an absence of suitable habitats.

At the Applecross ferry terminal site, the biological survey identified a total of six flora species. Two of the flora species recorded were native taxa, with the remaining four considered introduced. No priority or threatened flora species were recorded. Additionally, none of the flora species observed were listed as declared pests under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) (GHD, 2025).

A total of 17 flora species were recorded within the Matilda Bay ferry terminal site. Twelve (12) of the flora species recorded were native taxa, with the remaining five considered introduced. No priority or threatened flora or declared pest plants were recorded (GHD, 2025).

At the Elizabeth Quay ferry terminal site, a total of five flora species were recorded, three of which were native taxa and the remaining two species considered introduced. No priority or threatened flora or declared pest plants were recorded (GHD, 2025).

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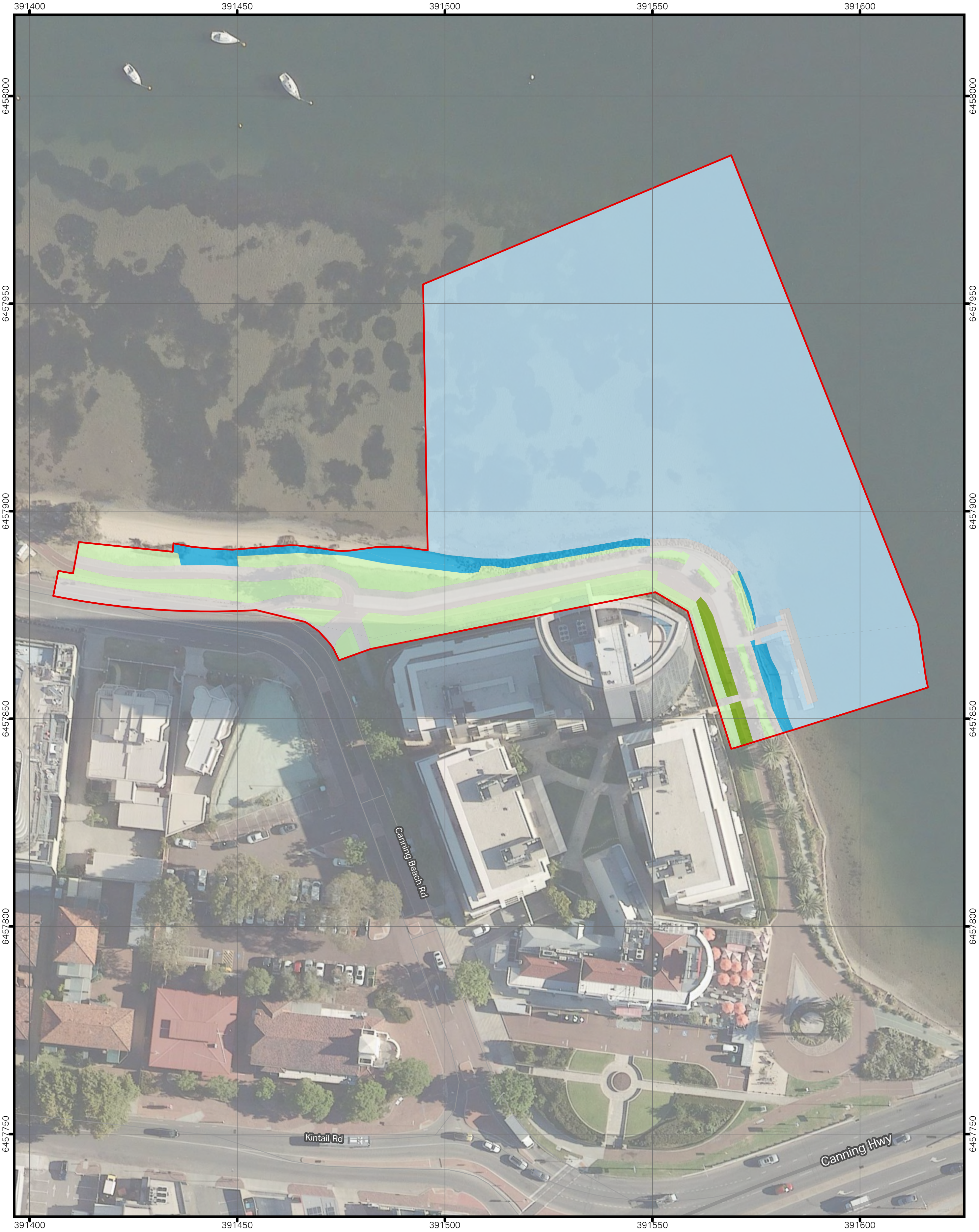

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🟥 Development Envelope

Biological Survey (GHD and AECOM, 2025)

Vegetation Type

▨ Cleared

▨ Open water

🟩 Parkland

▨ Revegetation and Replanting

▨ Wetland Shoreline

Terrestrial Vegetation Types: Applecross Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
4a

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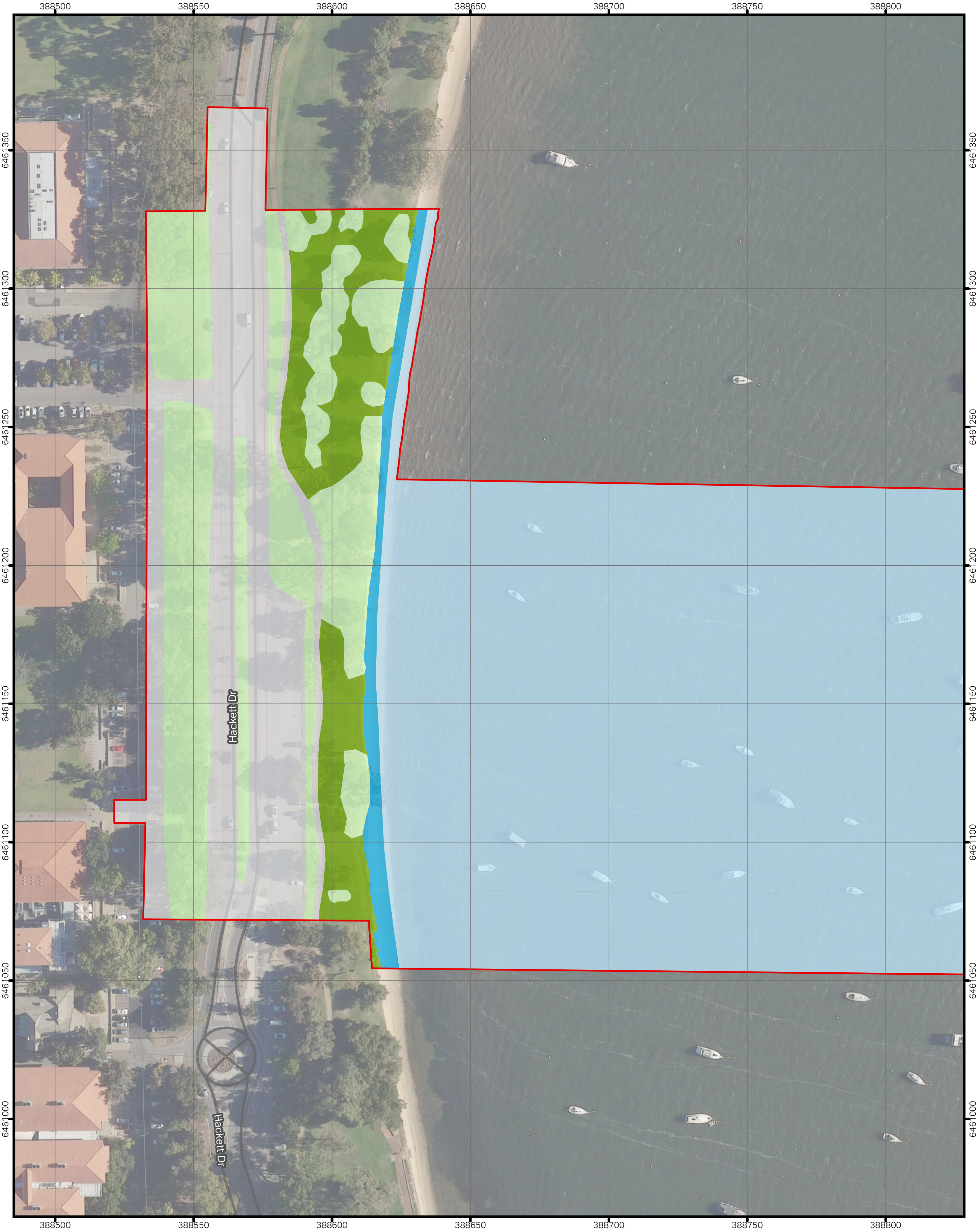

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🟥 Development Envelope

Biological Survey (GHD and AECOM, 2025)

Vegetation Type

▨ Cleared

🟦 Open water

🟩 Parkland

🟩 Revegetation and Replanting

🟦 Wetland Shoreline

Terrestrial Vegetation Types: Matilda Bay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure

4b

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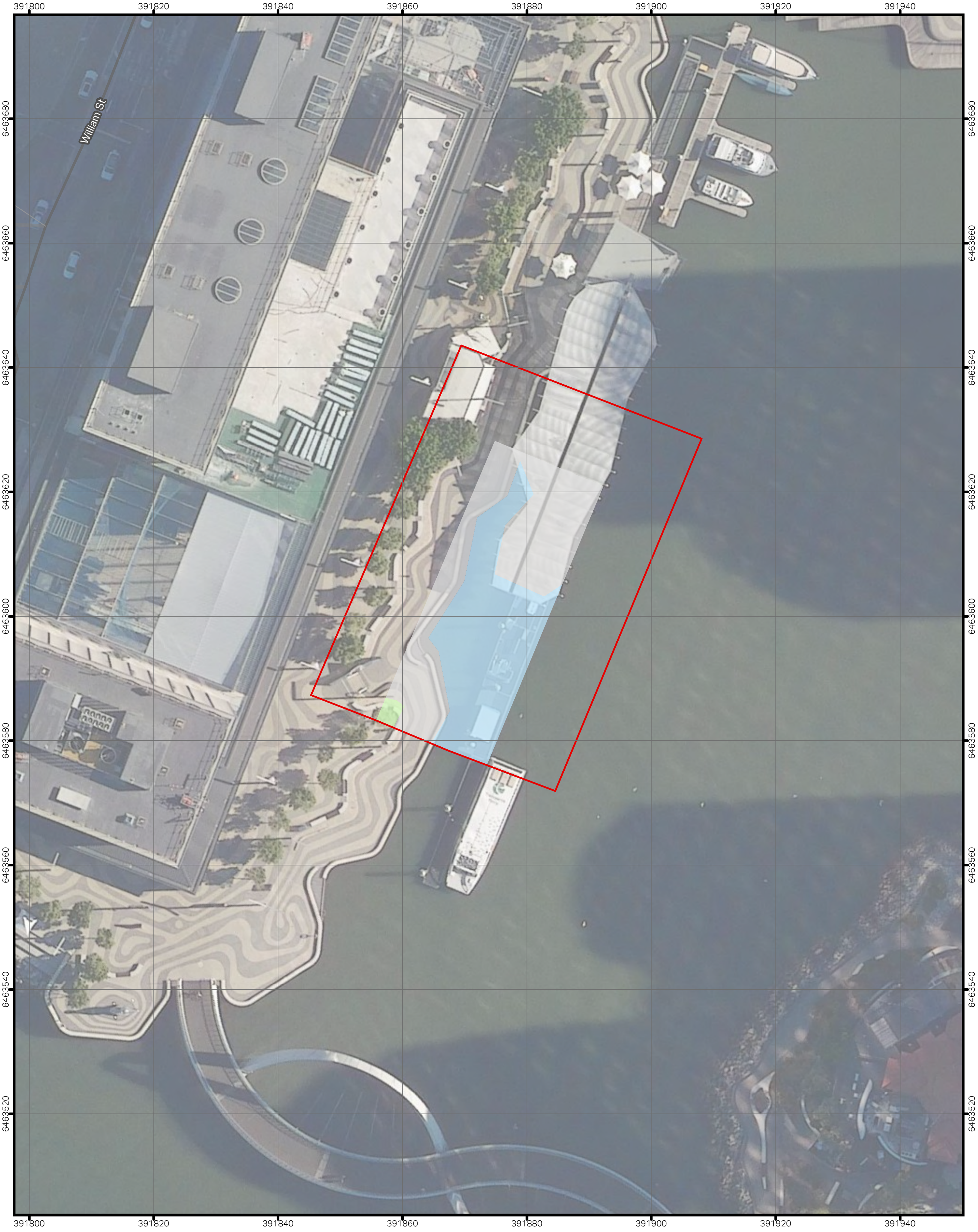
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🟥 Development Envelope
Biological Survey (GHD and AECOM, 2025)
Vegetation Type
▨ Cleared
▨ Open water
🟩 Revegetation and Replanting

Terrestrial Vegetation Types: Elizabeth Quay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
4c

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3.5 Terrestrial Fauna

A desktop assessment identified 44 threatened fauna species with potential to occur within 5 km of the ferry terminal sites (GHD, 2025) . Due to the highly modified nature of the terrestrial part of the ferry terminal sites, as well as the notable fragmentation and small size of vegetation patches, the vegetation is unlikely to provide suitable habitat for mammals or medium to large reptiles. Only avian taxa (terrestrial species inhabiting wetlands in urbanised environments), smaller reptiles and amphibian species were considered as having the potential to occur in the locality. However, the ferry terminal sites do not constitute important habitat for the establishment of migratory avian species and are likely to receive only transient visitors on their way to a more suitable environment. In addition, the regular presence of domestic dogs (*Canis familiaris*) within the ferry terminal sites is expected to be a deterrent to the persistence of fauna species.

A biological survey of the ferry terminal sites, including a desktop assessment and a basic reconnaissance level fauna survey was completed by GHD on 7 and 27 March 2025 (GHD, 2025) (Appendix A).

Within the Applecross ferry terminal site, five broad fauna habitats were identified, including Riparian, River and Shoreline, Native and exotic plantings, and Parkland with planted trees, Cleared and Open water. The field survey recorded a total of eight birds and one mammal species, with no reptiles, fish or frog species sighted. One species recorded was introduced, that being the Rainbow Lorikeet (*Trichoglossus moluccanus*). No significant fauna species were recorded (GHD, 2025).

The Matilda Bay ferry terminal site had a total of five fauna habitats, including Shoreline or Riparian and River, Scattered trees, Parkland over revegetation and re-planted vegetation, Cleared areas, and Open water. A total of 11 bird species were recorded during the survey, with no mammal, reptile, fish or frog species sighted. Two introduced species were identified, including the Rainbow Lorikeet (*Trichoglossus moluccanus*) and the Long-billed Corella (*Cacatua tenuirostris*). No significant fauna species were recorded (GHD, 2025).

A section of the Matilda Bay ferry terminal site was not included in the biological survey undertaken by GHD. This area is made up cleared roads and grassed foreshore with a number of planted trees, the majority of which are non-endemic planted eucalypt species. Therefore, this additional site area is not likely to contain any habitat suitable for conservation listed fauna with the exception of Black Cockatoos (discussed below).

Within the Elizabeth Quay ferry terminal site, two broad fauna habitats were recorded, including Native and exotic mixed plantings and Cleared areas. A total of four bird species were recorded during the survey, with no mammal, reptile or fish species identified. One introduced species was recorded, the domestic pigeon (*Columba livia*). No significant fauna species were recorded (GHD, 2025).

Terrestrial fauna habitat is shown is Figure 5.

3.5.1 Black Cockatoo Habitat

AECOM undertook a Black Cockatoo habitat assessment of the Matilda Bay ferry terminal site on 17 July 2025 (Appendix B). The survey targeted all three threatened Western Australian black cockatoo species which are Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*), and the Forest-Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*).

Breeding, foraging and night roosting habitat values were recorded using methodology outlined in the Referral Guidelines for Three Threatened Black Cockatoo Species and the 'Survey guidelines for Australia's threatened birds' (DAWE, 2022; DCCEEW, 2010).

A refined foraging assessment was completed using data collected during the survey based on the Bamford Consulting Ecologists (2020) scoring system which assists in identifying areas of higher quality habitat to assist in impact avoidance. The results are summarised below:

Breeding Habitat

Twenty-nine potential nesting trees were identified, none supporting hollows suitable for potential breeding. The survey area supports scattered native species including a Flooded Gum and a Wandoo tree amongst planted Eucalyptus and Lemon-scented Gums. Despite many trees exceeding the 300mm Diameter at Breast Height (DBH) threshold outlined in DAWE (2022) guidelines, the absence of hollows suggests limited breeding habitat value, and future hollow development is considered unlikely.

Black Cockatoos are known to breed in woodland or forest, partially cleared areas and isolated trees. For this reason the breeding value cannot be entirely discounted. However, isolated trees are likely to refer to trees in paddocks in proximity to woodlands and forests rather than landscaped corridors in a heavily urban environment.

Foraging Habitat

The survey area has no foraging quality for Baudin's or Carnaby's using the DAWE (2022) guidelines. The area is considered 'high quality' for Forest Red-tailed Black Cockatoos based on the presence of suitable foraging trees and foraging evidence present.

Similarly, the Bamford scoring tool determined that the "Revegetation, Replanting and Parkland" fauna habitat provides low or negligible foraging quality for Baudin's and Carnaby's Cockatoo respectively, and Low to Moderate quality foraging for Forest Red-tailed Black Cockatoos. This again was influenced by the lack of suitable foraging species for the former two Cockatoo species, while evidence of use was recorded for Forest Red-tailed Black Cockatoo. In total 0.88ha of low to moderate quality foraging habitat for the Forest Red-tailed Black Cockatoo was recorded across the ferry terminal site.

The survey area represents a narrow corridor of planted native and introduced mature tree species. It is not anticipated that Cockatoos would utilise this as significant foraging habitat taking into account the prevalence of preferred foraging species in Kings Park remnant native vegetation.

The presence of feeding debris from Forest Red-tailed Black Cockatoo supports their use of the area, while the absence of evidence for the other species may reflect habitat limitations or seasonal variability.

Night Roosting Habitat

Roosting potential within the survey area and surrounding area is supported by the presence of suitable tree species (e.g. *Corymbia citriodora*) and confirmed roosting sites within 1.5 km of the survey area. However, at a landscape scale, the removal of these trees is unlikely to significantly impact black cockatoo populations, given the presence of 36 known roosting sites within a 20 km radius (DBCA, 2019a). This broader context suggests that while the survey area may offer some roosting value, its contribution to regional habitat availability is relatively minor.

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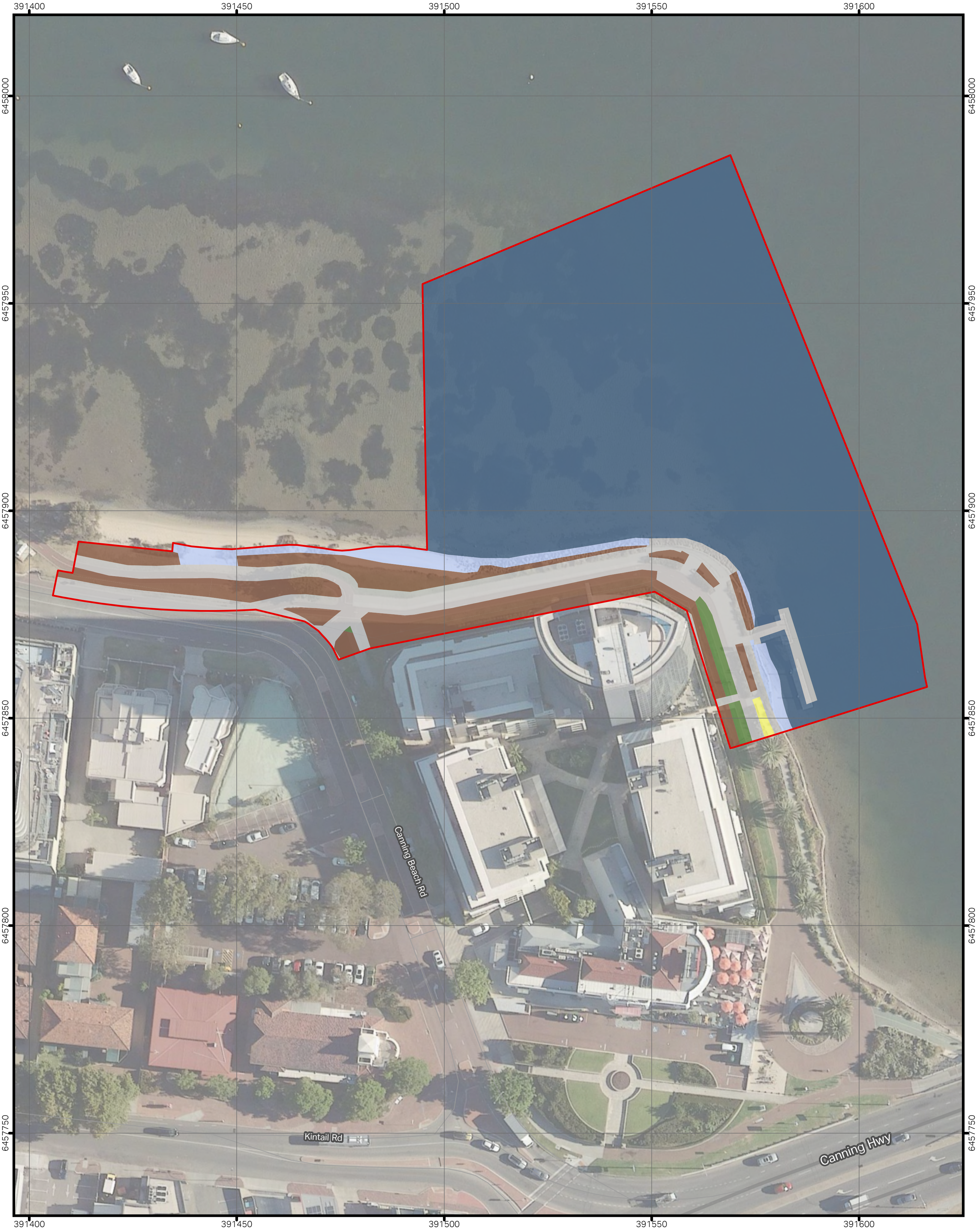

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☐ Development Envelope

Fauna Habitats (GHD and AECOM, 2025)

🟨 Exotic

🟦 Open water

🟫 Parkland cover over revegetation and replanted

🟩 Scattered trees

⬜ Shoreline wetlands riparian river

⬜ Cleared

Terrestrial Fauna Habitats: Applecross Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
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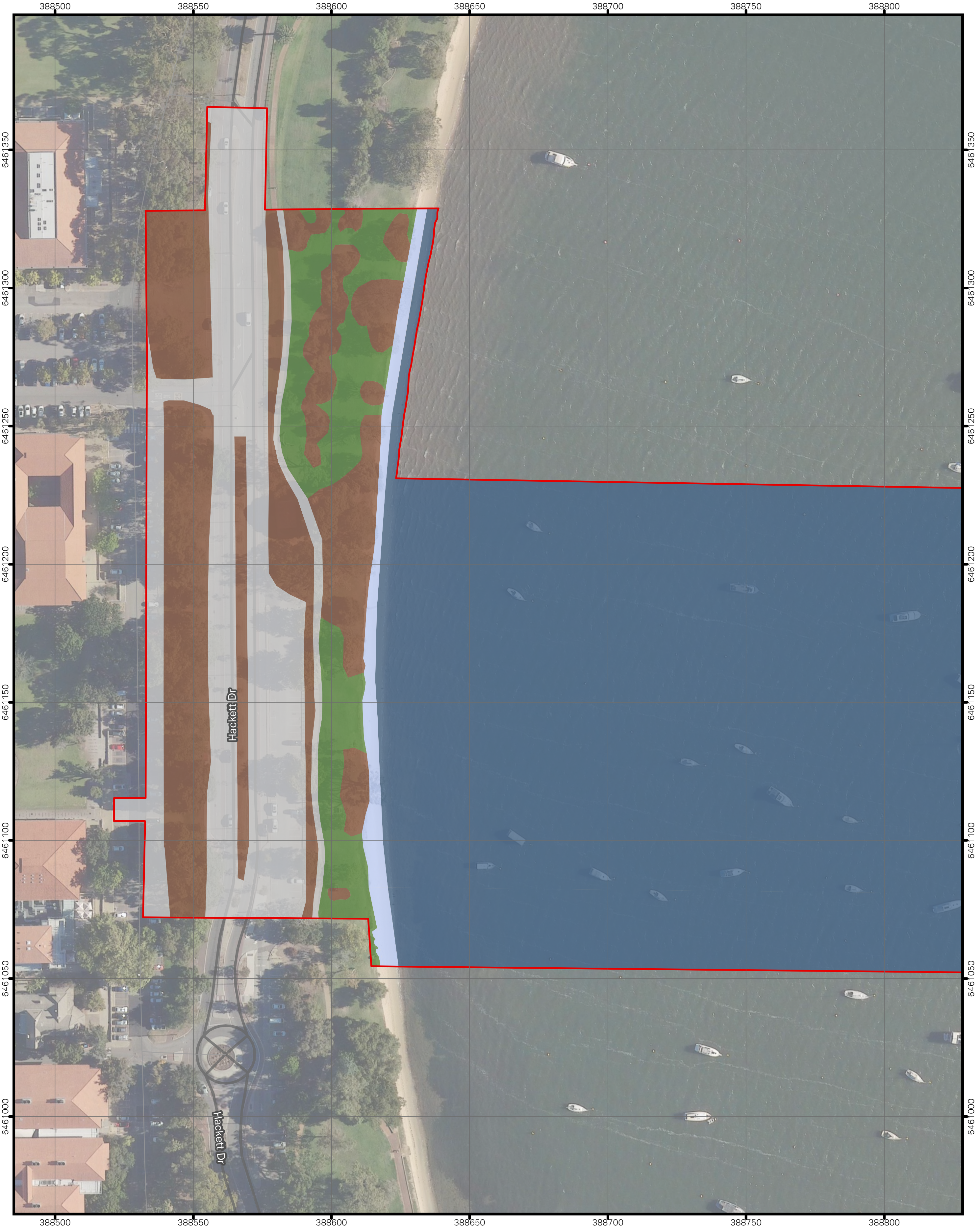

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🟥 Development Envelope

Fauna Habitats (GHD and AECOM, 2025)

- ▬ Open water
- ▬ Parkland cover over revegetation and replanted
- 🟩 Scattered trees
- ▬ Shoreline wetlands riparian river
- ▬ Cleared

Terrestrial Fauna Habitats: Matilda Bay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
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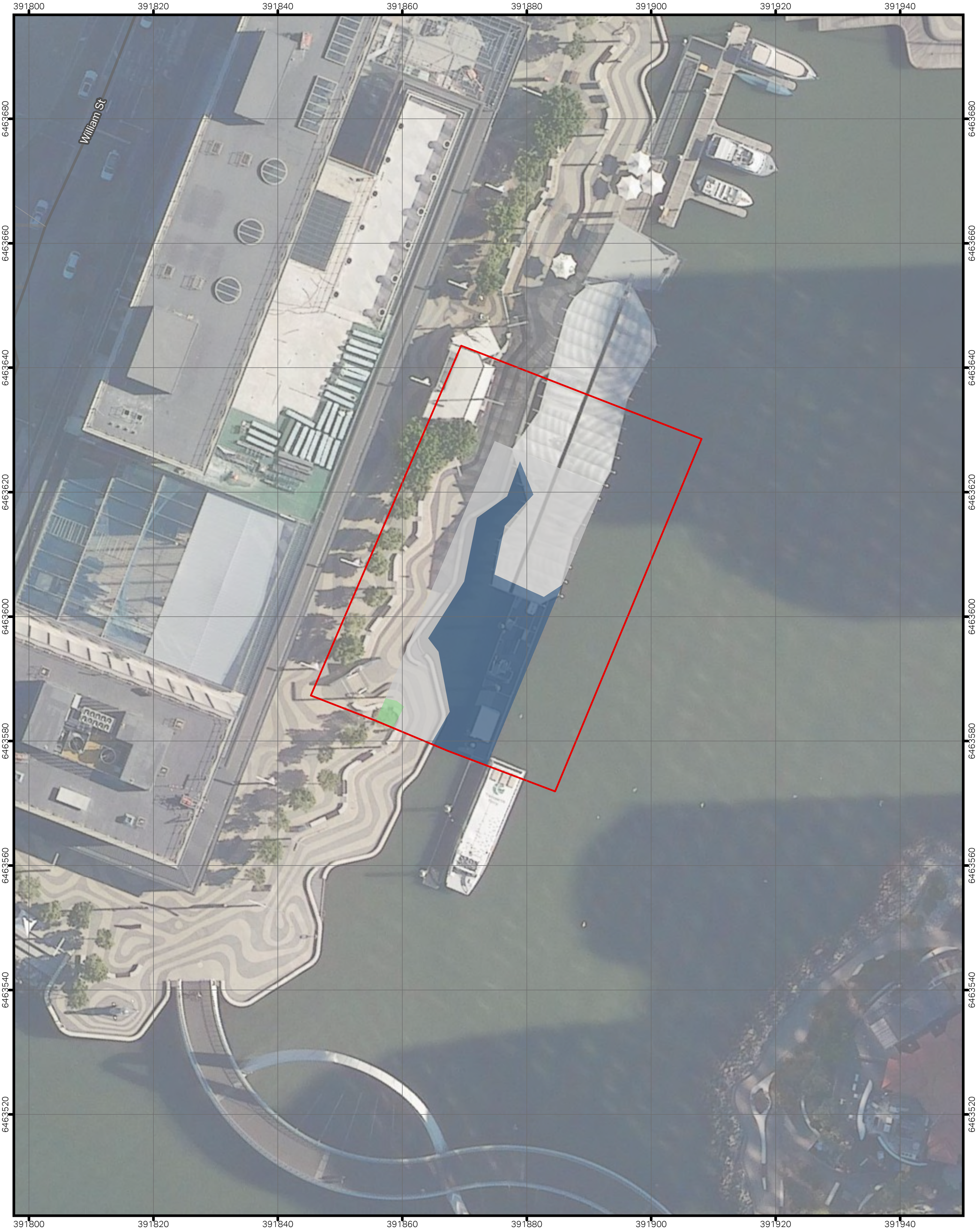

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- 🟥 Development Envelope

Fauna Habitats (GHD and AECOM, 2025)

- 🟩 Native exotic replantings
- 🟦 Open water
- ⬜ Cleared

Terrestrial Fauna Habitats: Elizabeth Quay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
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3.6 Conservation Reserves

The three proposed ferry terminal sites are zoned for general use under the Swan Estuary Marine Park and Adjacent Nature Reserves Management Plan (DCLM, 1999).

3.6.1 Swan-Canning River Reserve

The proposed Matilda Bay and Applecross ferry terminals are situated within the Swan-Canning River system which is identified as a DBCA legislated reserve (R 48325) for the purpose of Landscape Protection protected under the SCRM Act (Figure 6a-b). The Elizabeth Quay ferry terminal site does not affect the River reserve under the SCRM Act (Figure 6c).

3.6.2 Matilda Bay Foreshore

The terrestrial component of the proposed development at Matilda Bay is situated within the Matilda Bay Reserve (R 17375), an ‘A Class’ reserve for the purpose of recreation vested with the Conservation and Parks Commission (Figure 6b). The proposed development is considered to be consistent with the stated purpose of the reserve.

The Matilda Bay Management Plan (1992 – 2002) continues to guide the reserve management by DBCA. The management plan lists a number of management objectives for the reserve including:

- Recreation – provide the public with recreational opportunities and facilities that are consistent with management objectives and conflict between users.
- Conservation – Protect and conserve the Reserve’s physical, cultural and scenic resources.
- Information, Interpretation and Education – promote an understanding of the Reserve’s history and natural environment and awareness and appreciation of its values.
- Research and Monitoring – promote and undertake studies on the Reserve’s social values and natural processes, and monitor the impacts of visitor use and management.

3.6.3 Swan Estuary Marine Park

The Swan Estuary Marine Park is a shallow water A-class Marine Park that encompasses three biologically important areas within the Swan Canning estuary near the project areas, which are Alfred Cove, Pelican Point (Figure 6b) and Milyu (DCLM, 1999). These locations are considered biologically important areas (BIA) because they have a diverse ecosystem, are culturally significant and provide recreational opportunities. These sites hold significant cultural, mythological, and historical significance for the Whadjuk people and provide recreational opportunities, including swimming, fishing and boating. Restrictions are in place for recreational activities to ensure protection of the environment.

Pelican Point lies near to the Matilda Bay terminal site. The proposed operational route of the project passes near to Pelican Point Marine Park (5.5-ha) and Milyu Marine Park (4.4 ha) zones (SLR, 2025).

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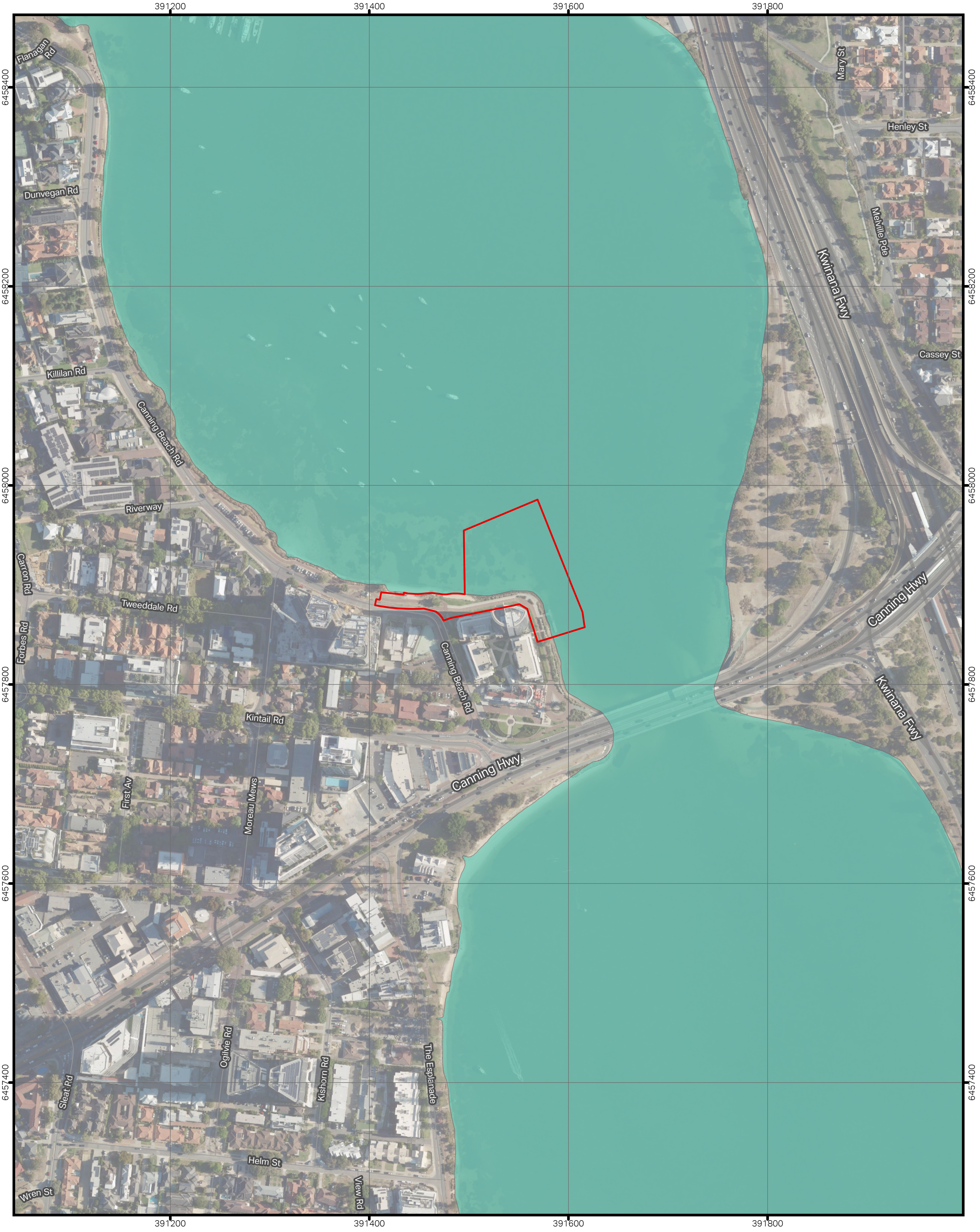
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Canning Beach Rd
First Av
Moreau Mews
Canning Hwy
Ogilvie Rd
Sleat Rd
Kishorn Rd
The Esplanade
Helm St
View Rd
Wren St
Mary St
Henley St
Melville Pde
Kwinana Fwy
Cassey St
Canning Hwy
Kwinana Fwy

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🟥 Development Envelope

DBCA - Legislated Lands and Waters (DBCA-011)

🟩 SCRM Act - River Reserve

Conservation Reserves: Applecross Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
6a

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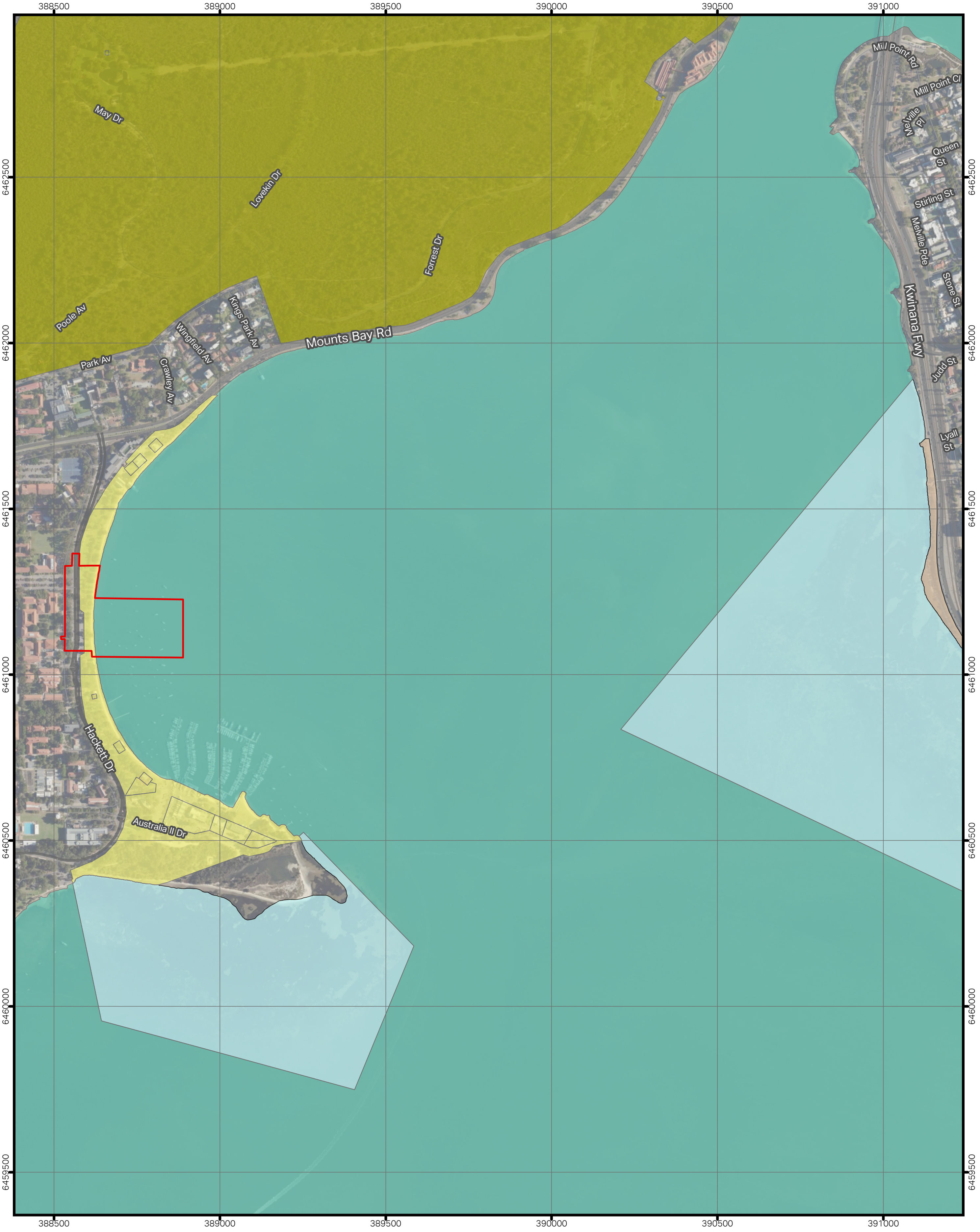
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Crawley Av
Mounts Bay Rd
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Australia II Dr
Mill Point Rd
Mill Point Cl
Mayville Pl
Queen St
Stirling St
Melville Pde
Stone St
Kwinana Fwy
Judd St
Lyall St

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- DBCA - Legislated Lands and Waters (DBCA-011)
- ▨ Nature Reserve
- ▨ Section 5(1)(g) Reserve
- ▨ Marine Park
- ▨ SCRM Act - River Reserve
- ▨ Botanic Gardens and Parks Auth. Reserve

Conservation Reserves: Matilda Bay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
6b

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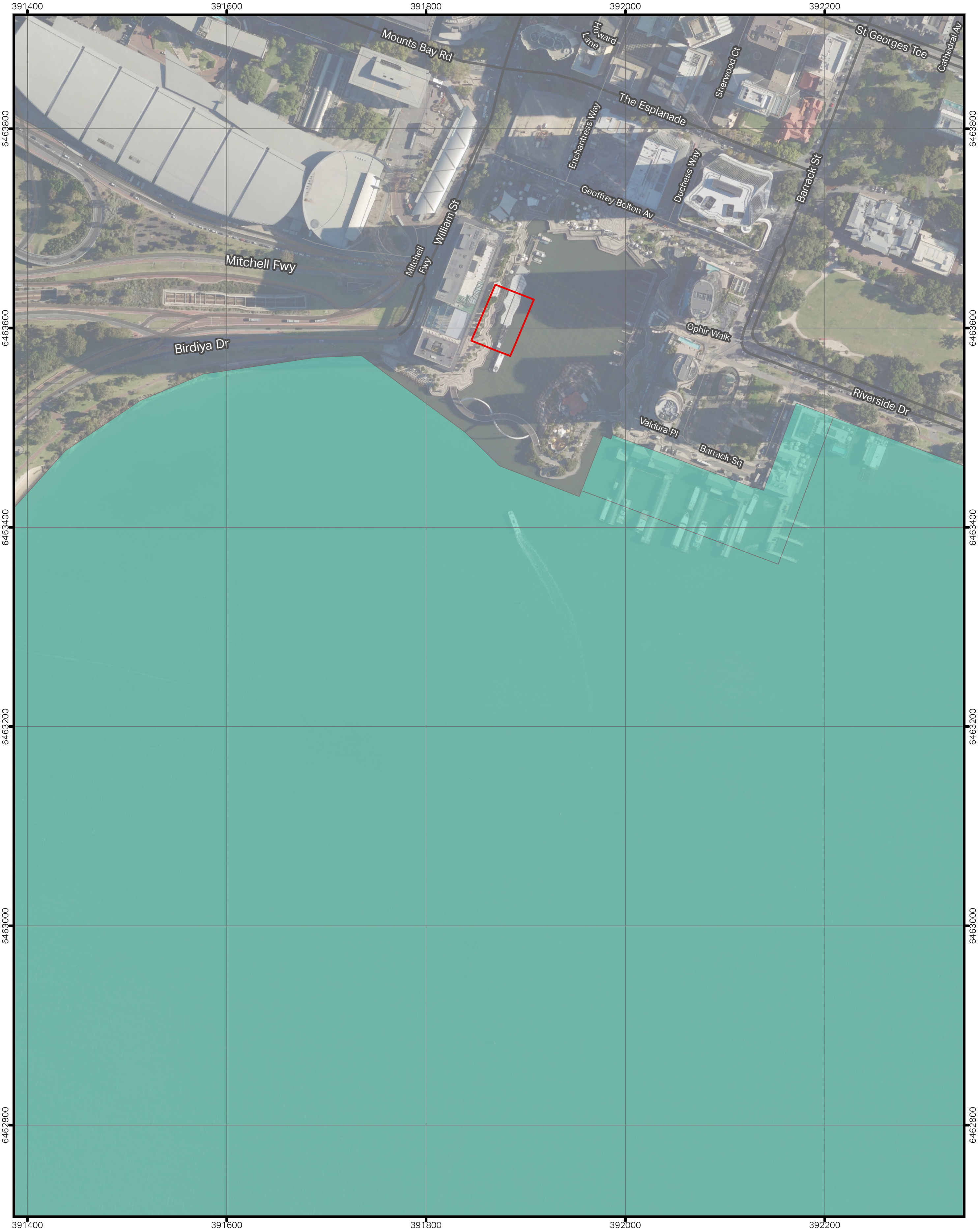
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St Georges Tce
Cathedral Av
The Esplanade
Enchantress Way
Duchess Way
Barrack St
Geoffrey Bolton Av
William St
Mitchell Fwy
Mitchell Fwy
Birdiya Dr
Ophir Walk
Riverside Dr
Valdura Pl
Barrack Sq

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DBCA - Legislated Lands and Waters (DBCA-011)

🟩 SCRM Act - River Reserve

Conservation Reserves: Elizabeth Quay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
6c

3.7 Wetlands and Water

3.7.1 Wetlands

The Geomorphic Wetlands of the Swan Coastal Plain mapping (DBCA, 2025) identifies the Swan River Estuary as a Conservation Category Wetland (CCW) (UFI 13316) (Figure 7), listed as a basin landform and Estuary waterbody.

The Swan Canning River system is also listed in the Directory of Important Wetlands in Australia (Site WA091) (Landgate, 2025) which is a large database that encompasses a number of important elements and aims to identify important wetlands across Australia to provide a substantial knowledge base on what defines wetlands and their variety and dependence on them of many flora and fauna species.

3.7.2 Groundwater

Review of the Perth Groundwater Map indicates that groundwater is present at depths of less than 5 metres below ground level at all ferry terminal sites (DWER, 2022a). Additionally, the ferry terminal sites lie within the Perth Groundwater Proclamation Area (DWER, 2022b).

No Public Drinking Water Source Areas (PDWSA) are present.

3.7.3 Catchment Flows

Historical trends show South-west Western Australia, including the Swan-Canning catchment, has become drier, with decreases in both rainfall and in particular winter rainfall volumes, while storm intensity is increasing. In addition, ambient temperatures and evaporation rates have increased. These changes have resulted in lower average annual runoff since the 1970s, with rainfall and catchment flows decreasing by approximately 20% in this period (DWER, 2024) (DPIRD, 2023).

3.8 Water Quality

Review of the freshwater catchment inputs into the Swan-Canning Estuary for the period 2013-2016 showed that freshwater flow into the Swan River was much greater than that recorded in the Canning River, accounting for 84% of the total flow. Total monthly discharge in the period peaked in September 2013 (111 GL), although the month of peak flow varied between years, depending on timing of storms. Freshwater flows were relatively low (<5 GL per month) between November and April each year, supporting the view that catchment flows in summer periods were significantly reduced (Crisp, et al., 2018).

Nutrient inputs that are mobilised into the system are typically derived from catchment flows, stormwater drainage outfalls and marine tidal inputs, with stormwater drainage contributing greater proportions of the nutrient inputs in summer (Twomey & John, 2001).

Water quality sampling surveys of the ferry terminal sites is currently being conducted. These surveys will assist in determining baseline data for comparison monitoring during and post development.

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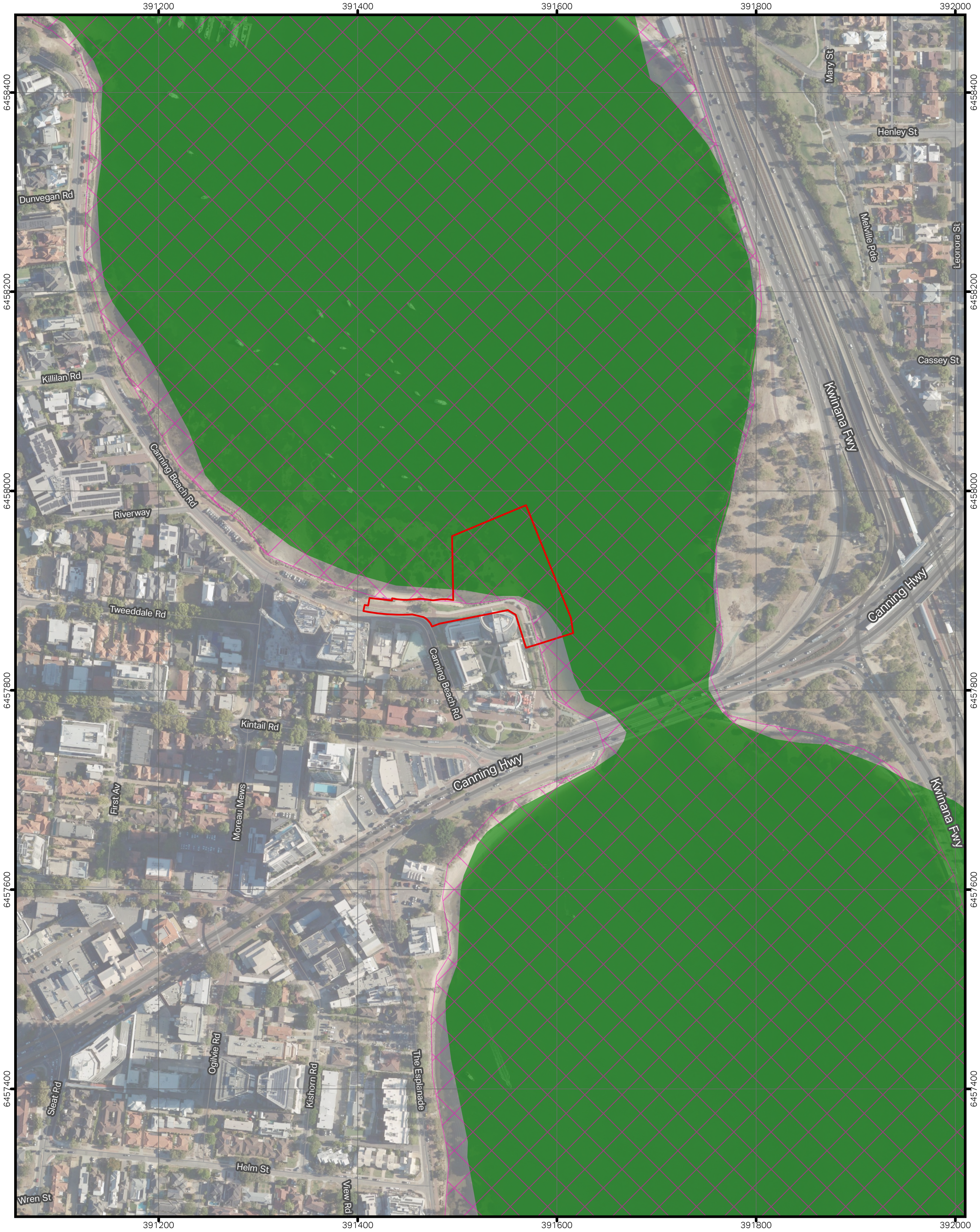
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Kintail Rd
First Av
Moreau Mews
Canning Hwy
Ogilvie Rd
Kishorn Rd
The Esplanade
Sleat Rd
Helm St
View Rd
Wren St
Mary St
Henley St
Melville Pde
Leonora St
Cassey St
Kwinana Fwy
Canning Hwy
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LEGEND

🟥 Development Area

Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)

🟩 Conservation

▨ Directory of Important Wetlands in Australia - Western Australia (DBCA-045)

Geomorphic Wetlands: Applecross Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
7a

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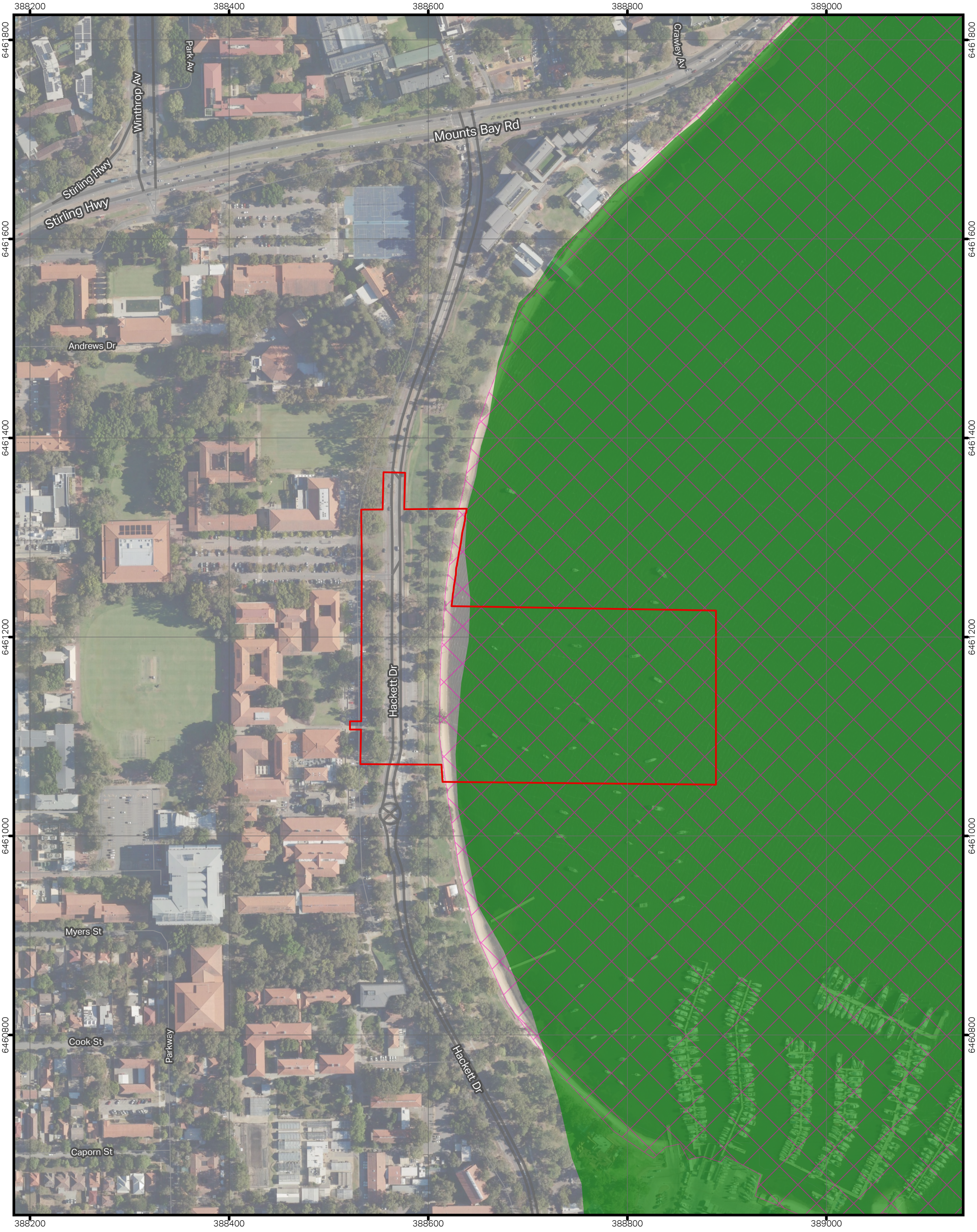
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Crawley Av
Mounts Bay Rd
Stirling Hwy
Stirling Hwy
Andrews Dr
Hackett Dr
Myers St
Cook St
Parkway
Caporn St
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LEGEND

🟥 Development Area

Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)

🟩 Conservation

▨ Directory of Important Wetlands in Australia - Western Australia (DBCA-045)

Geomorphic Wetlands: Matilda Bay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
7b

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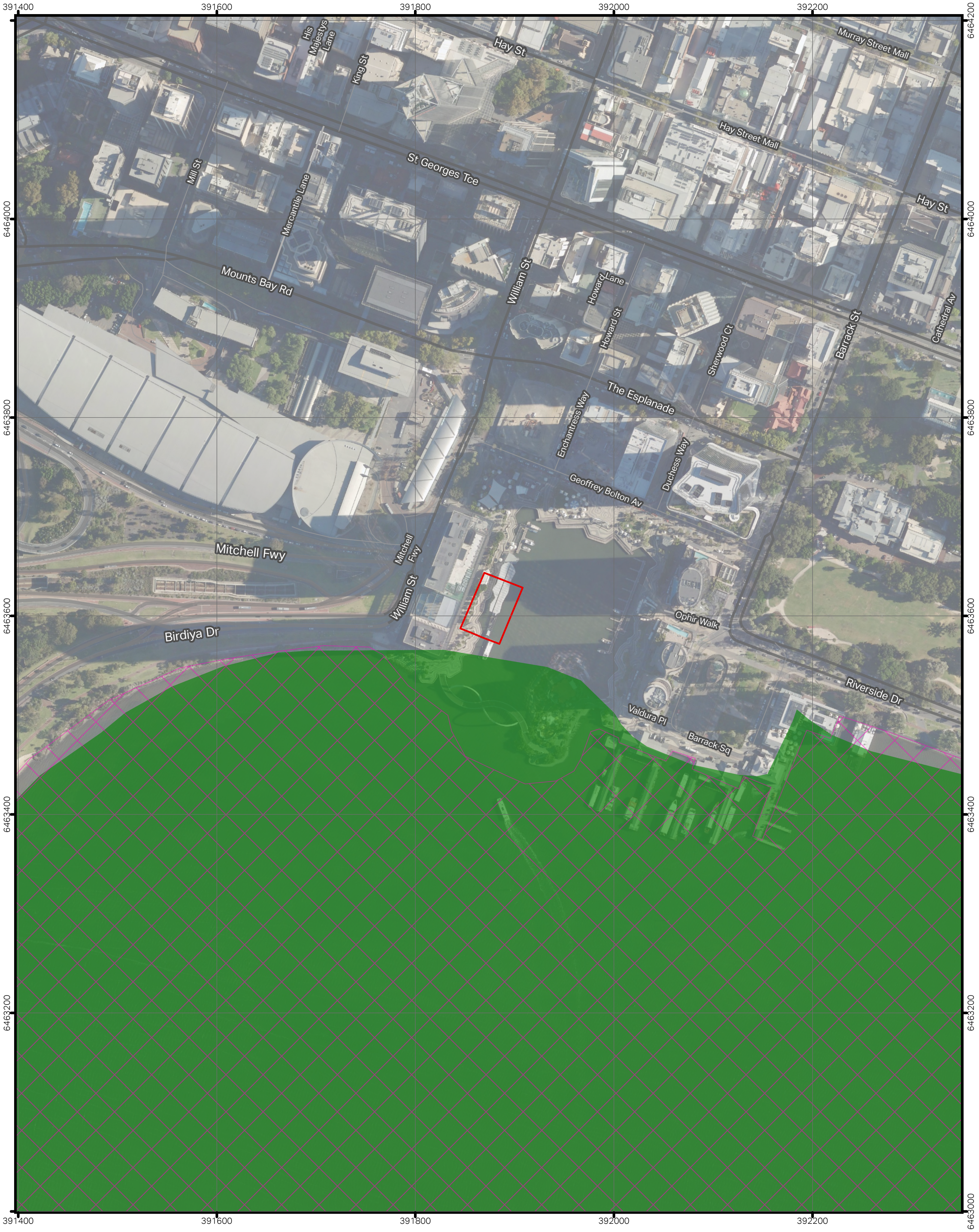
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His Majestys Lane
King St
Hay St
Murray Street Mall
Hay Street Mall
Hay St
Mill St
Mercantile Lane
St Georges Tce
William St
Howard Lane
Howard St
Sherwood Ct
Barrack St
Cathedral Av
Mounts Bay Rd
The Esplanade
Enchantress Way
Duchess Way
Geoffrey Bolton Av
Mitchell Fwy
Mitchell Fwy
William St
Ophir Walk
Birdiya Dr
Riverside Dr
Valdura Pl
Barrack Sq

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🟥 Development Area

Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)

🟩 Conservation

▨ Directory of Important Wetlands in Australia - Western Australia (DBCA-045)

Geomorphic Wetlands: Elizabeth Quay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure

7c

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3.9 Contaminated Sites

A search of DWER's contaminated sites database indicates that there is a site 'remediated for restricted use' approximately 590 m north of the Matilda Bay ferry terminal site. This contaminated site is separated from the proposed activities by Hackett Drive and Mounts Bay Road and is therefore not relevant to the Project.

The Applecross ferry terminal site is located near to two contaminated sites both characterised as 'remediated for restricted use'. One site is approximately 170 m from the ferry terminal site and is separated by Kintail Road. The other site is about 260 m from the ferry terminal site and is separated by Kintail Road and Canning Highway.

Preliminary Site Investigations (PSIs) for each of the ferry terminal sites have been carried out to determine the contamination and soil profile. The investigation at Matilda Bay and Applecross included soil sampling (via hand auger) and analysis of the soil against relevant criteria. A summary of the findings for each ferry terminal site is outlined below:

- Matilda Bay: uncontrolled fill materials were observed at the ferry terminal site; however, the risks associated with construction disturbance for the proposed ferry terminal is currently considered low and acceptable for relevant receptors, due to the anticipated limited extent of soil disturbance and the quality of surface water (GHD, 2025).
- Applecross: Based on current land use and available information, construction disturbance of the ferry terminal site is unlikely to pose an unacceptable risk.
- Elizabeth Quay: The proposed ferry terminal construction is expected to involve limited disturbance. Preliminary assessment indicates that this level of disturbance is unlikely to present an unacceptable risk to relevant receptors at this time.

3.10 Benthic Habitat

Seagrasses are an important component of the Swan-Canning Estuary as they are a primary producer, food source for black swans (*Cygnus atratus*), provide habitat for various species, act as a nutrient and carbon sink and are sediment oxygenator and stabiliser (DoW, 2014). *Halophila ovalis*, or paddleweed, is the most dominant seagrass species in the Swan-Canning Estuary. Three other species also inhabit the estuary including, *Halophila decipiens*, *Ruppia megacarpa* and *Zostera muelleri*. *H. ovalis* has been estimated to cover around 20%-25% of the total area of the Swan-Canning Estuary (Kilminster & Forbes, 2014). *H. ovalis* is an ephemeral seagrass, growing the quickest in the warmer seasons of summer and autumn, and disappearing during the winter months due to the onset of freshwater flows, which lead to decreases in salinity and light penetration (DoW, 2010).

The Swan-Canning Estuary hosts a diverse array of macroalgae, with 35 species identified in previous studies (DoW, 2010). Majority of these species are found in the lower reaches of the estuary, near the mouth at Fremantle. In the upper areas of the estuary, macroalgae is primarily found in the shallow waters likely due to water clarity. Red algae are the most common species found in the estuary, with *Gracilaria comosa*, being the most common species. Similar to seagrass, macroalgal abundance is lowest during the winter months (DoW, 2010).

Currently, seagrass health in the Swan-Canning estuary is managed under the River Protection Strategy for Derbal Yirragan Djarlgarro (DPaW 2015), which is a requirement of the SCRM Act. Annual surveys are conducted at monitoring locations in the Swan-Canning Basin area, located near the Swan Estuary Marine Park zones by DBCA to infer annual changes in abundance and distribution of seagrass and macroalgal species.

Benthic habitats at the three ferry terminal sites consist mainly of soft sediments and ephemeral (seasonal) seagrasses and macroalgae, which changes cover and composition on an annual basis.

In the context of the broader environment within the Swan Canning estuary, the ferry terminal sites combined represent a small segment of potential sites for the seasonal establishment of seagrass. Furthermore, a majority of mapped areas of seagrass habitat in the Swan Canning estuary is located outside of the ferry terminal sites, with no evidence of permanent seagrass beds within the Applecross and Matilda Bay ferry terminal sites anticipated (DoW, 2014). The Elizabeth Quay ferry terminal site contains small fragments of sparse-rated and medium-rated seagrass cover on the outer regions of these Open Water sections, however this is also a modified environment.

A benthic community habitat (BCH) survey was conducted by BMT from 10–12 March 2025 to classify estuarine habitats across 4.94 ha within the ferry terminal sites, covering Elizabeth Quay, Matilda Bay, and Applecross. The survey, timed for peak seasonal growth, used high-definition towed video and side scan sonar to map seabed features, with drop camera footage used at Elizabeth Quay due to access constraints. A marine ecologist analysed the footage using Transect Measure software to classify benthic habitats based on dominant and minor categories.

Results showed that within all three ferry terminal sites, bare sand was the dominant BCH category, especially further offshore at Matilda Bay and Applecross, and entirely in Elizabeth Quay. For the Matilda Bay and Applecross ferry terminal sites, BCH displayed similar spatial distribution; bare sand with patches of seagrass, macroalgae or mixed seagrass and macroalgae in the nearshore of the ferry terminal sites transitioning to bare sand further offshore as the banks deepen.

The area of benthic habitats across the DE’s for each terminal location is summarised in Table 1 below:

**Table 1	Habitat Types**

Location	Habitat	Area (ha)
Applecross	Seagrass	0.11
	Seagrass and macroalgae	0.14
	Sparse seagrass and macroalgae	0.003
	Sparse seagrass	0.01
	Sand	0.63
Matilda Bay	Seagrass	0.37
	Sand	1.86

BCH mapping is shown in Figure 8.

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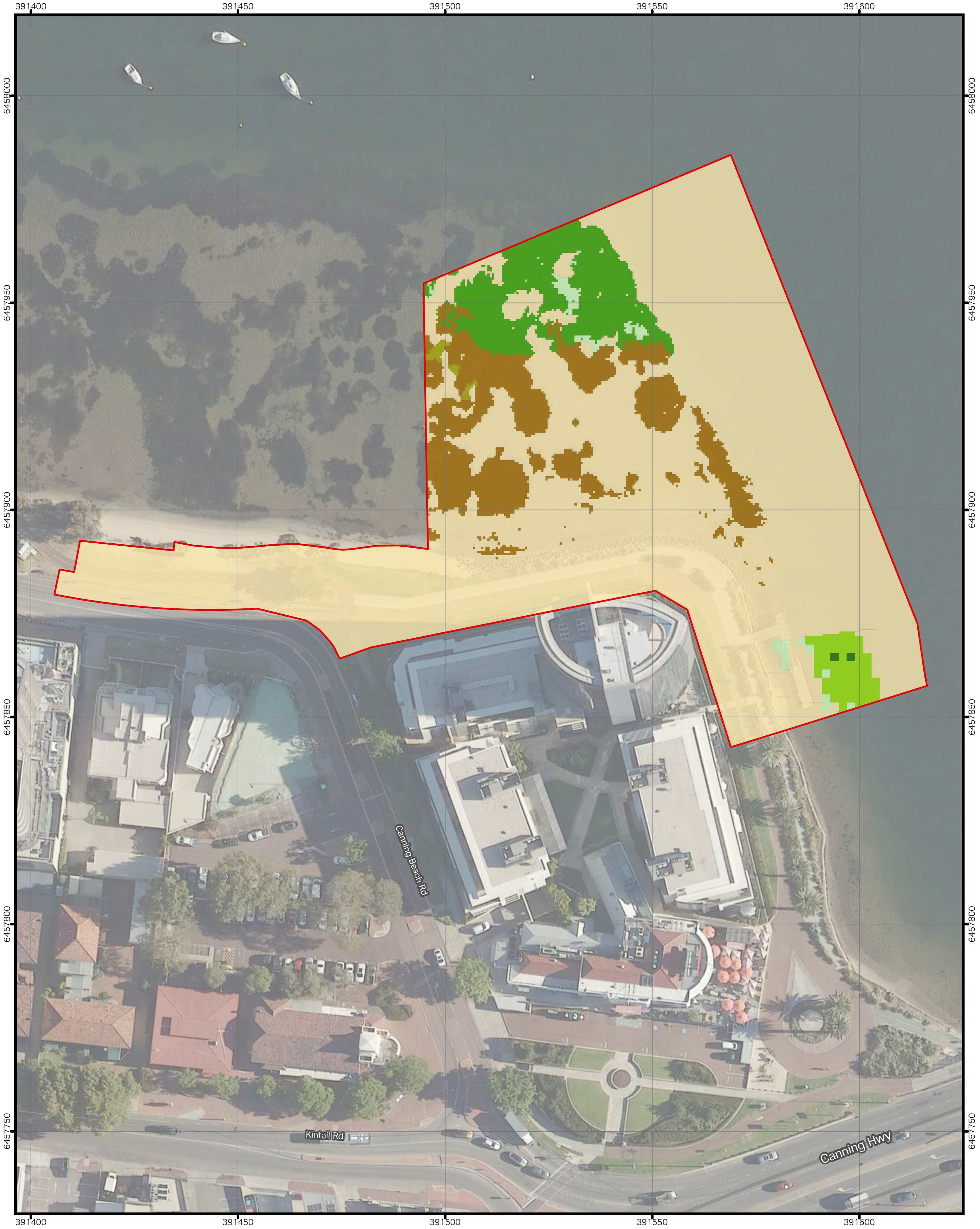

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Benthic Habitat (BMT, 2025)
- 🟨 Sand
- 🟩 Seagrass
- 🟫 Seagrass and Macroalgae
- 🟩 Sparse Seagrass
- 🟨 Sparse Seagrass and Macroalgae

Benthic Habitat (DBCA, 2023)
- 🟩 Seagrass Sparse
- 🟩 Seagrass Medium
- 🟩 Seagrass Dense
- 🟨 Sand

Benthic Habitat: Applecross Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
8a

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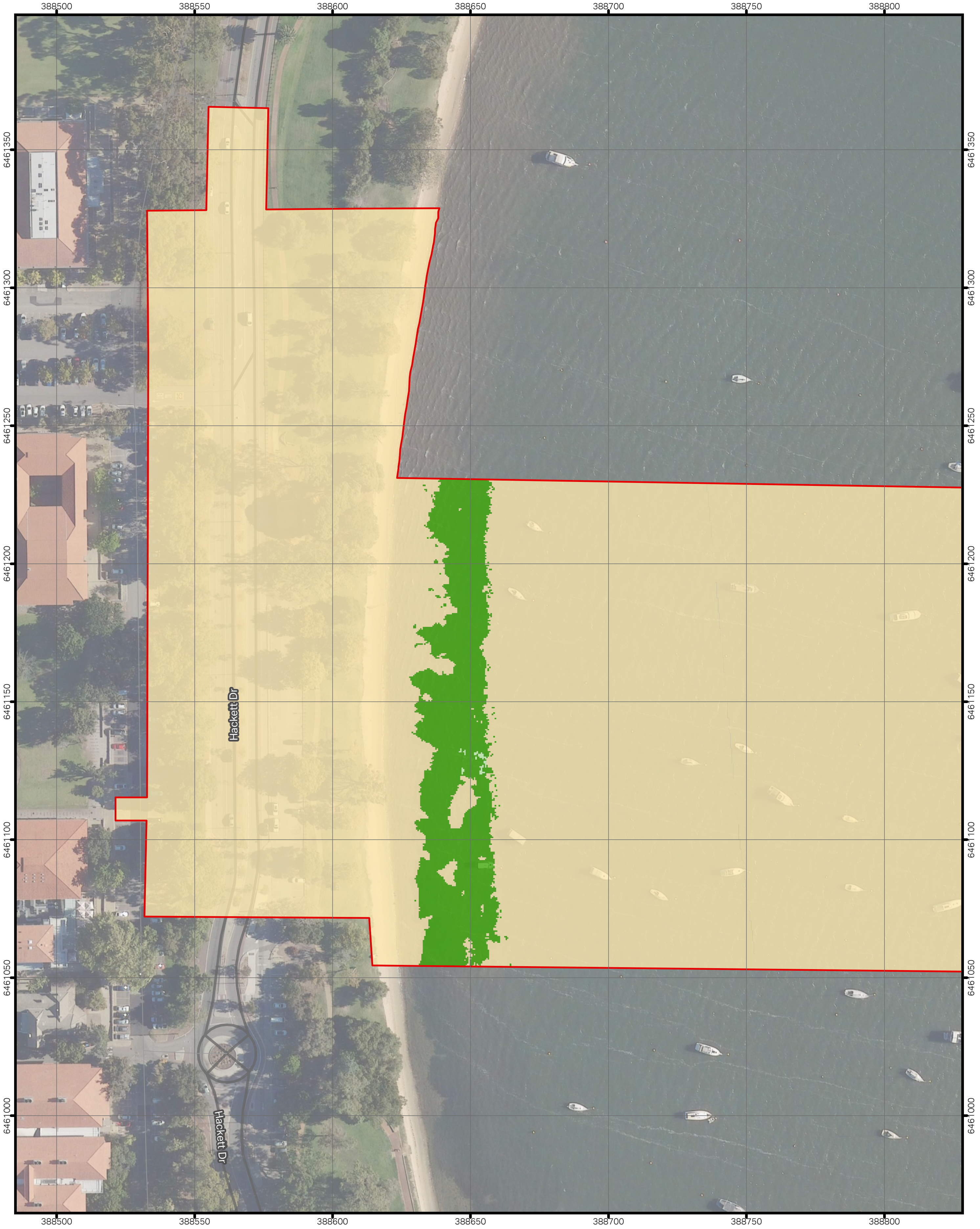

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Benthic Habitat (BMT, 2025)
🟨 Sand
🟩 Seagrass

🟩 Sparse Seagrass

Benthic Habitat (DBCA, 2023)
🟨 Sand

Benthic Habitat: Matilda Bay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
8b

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3.11 Sediments

Nice (2009) conducted a study on 20 sites throughout the Swan-Canning Estuary to assess sediments surface for metals, organochlorine (OC) pesticides and polycyclic aromatic hydrocarbons (PAHs). Data were compared to the Interim Sediment Quality Guideline Trigger Values (ISQGs) set by the Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZG, 2023). Overall, contaminants from all three groups were recorded in the sediments across the 20 sites. Of these 20 sites, one site (Melville Waters – Site 14), is nearest to Matilda Bay and Applecross project areas. No contaminants were found to exceed the ISQGs, and fine sands (2-63 µm size class) constituted on average 52.1% of the sediment particle size analysis.

The most recent baseline surveys to characterise general chemical concentrations and particle size trends for sediments in the Swan-Canning estuary were conducted by Novak & Hoeksema (2022), building upon previous surveys. This 2022 survey sampled for additional analytes including polychlorinated biphenyls (PCBs) and glyphosate. Comparison of the contaminants sampled in both studies showed that chemical concentrations have not changed significantly. Five contaminants exceeded the ISQGs which were zinc, copper and lead metals, the organochlorine pesticide DDE and PCBs. At the Melville Waters site (no. 14), no contaminants were found to exceed the ISQGs, and silt constituted nearly half of the sediment particle size analysis. However, these sediments are highly mobile and could potentially create hotspots within the river system.

Sediment sampling at each ferry terminal site was conducted by BMT on 10 April 2025. Samples were collected using a Van Veen grab, which collected sediments at the proposed sampling locations from surface to ~0.2m depth. Three samples were collected from within each survey area.

Sample results were assessed against relevant guideline values to determine potential environmental risks.

The results of the sediment sampling are summarised below:

- Sediment Composition: The size of particles in the sediment varied between samples. Three samples—Elizabeth Quay (EQ1), Matilda Bay (MB5), and Applecross (AP2) had mostly fine silt particles. The rest of the samples were mostly sand.
- Organic Carbon: The amount of organic carbon was higher in the silt-heavy samples (MB5, AP2, EQ1). Other samples had much lower organic carbon levels.
- Metals: One sample from Matilda Bay (MB5) had high levels of several metals: copper, lead, mercury, nickel, and zinc. Lead and zinc in this sample were also found in forms that are more easily absorbed by living organisms. Another sample from Applecross (AP1) had high cobalt levels in water extracted from the sediment.
- PFAS (Per- and Polyfluoroalkyl Substances): Samples from Matilda Bay and Applecross had PFOS levels (a type of PFAS) that were above safety guidelines for human health. All sites had PFOS levels in water extracts that exceeded national guidelines.
- Nutrients: All sites had high levels of nutrients like total phosphorus (TP), total nitrogen (TN), and ammonium (NH_4^+).
- Acidity and Sulfur: Sediments were slightly basic (pH between 8.4 and 9.5), meaning there was no actual acidity. Most samples had sulfur levels above the action threshold, suggesting potential acid sulfate soils (PASS). However, the sediments and surrounding seawater likely neutralize any acidity. Signs of mono-sulfidic black oozes (MBOs) were found across all areas.

3.12 Marine Fauna

The Swan-Canning Estuary is home to a variety of species, many of which are of social, cultural, conservation, recreational and commercial importance.

The Open Water habitats are present across all three ferry terminal sites are characterised as being marine microtidal estuary locations that are subject to seasonal increases in catchment flows. Habitats at the three ferry terminal sites are not considered to be part of Biologically Important Areas (BIAs) under State legislation (such as the Swan Estuary Marine Park), however they are known to provide brief foraging and refuge habitats for a range of endemic fish and crustaceans. These regions are also utilised by marine mammal species such as bottlenose dolphins, who are known to periodically hunt in these areas.

The project areas are not likely to support large residential populations of marine fauna species or contribute substantially to the overall seagrass cover in the estuary. Some of the species specifically considered in this assessment include the following:

- Bottlenose Dolphins:

  The Bottlenose Dolphins (*Tursiops aduncus*), utilise the estuary for foraging and breeding (Holyoake et al., 2011). Bottlenose Dolphins are protected under the BC Act, with specific guidance provided by the EPA through its Marine Fauna Environmental Factor Guidance which outlines best practices for managing potential impacts from vessel movements and jetty construction activities on marine fauna (EPA, 2016b). Monitoring for Indo-Pacific bottlenose dolphins in the Swan Canning Riverpark (Salgado and Chabanne, 2021) indicated that both the Matilda Bay and Applecross ferry terminal sites had relatively high numbers of dolphin sightings, although sightings from scientific vessels indicated these sightings were in deeper water set back from the shoreline.

- Estuarine Cobbler

  The Estuarine cobbler (*Cnidoglanis macrocephalus*), endemic to Australia, also inhabits the Swan-Canning Estuary. Commercial fishing of this species began in the 1940s and is restricted to estuaries in the South West. It is now managed under the South Coast Estuarine Managed Fishery (SCEF). Historically, the Estuarine Cobbler population in the Swan-Canning River dropped to significantly low levels, leading to a fishing ban in catching cobbler in the Swan-Canning estuary 2007. This species is known to utilise the BIA sites in the Swan Estuary Marine Park and is under continued fishery management (DoF, 2012).

- Western School Prawn

  The Western School prawn (*Metapenaeus dalli*) is a recreationally important fishery species in the Swan-Canning estuary. This species was once commercially fished in the Swan-Canning Estuary, until the commercial fishery was closed in the mid-1970s and recreational catch declined subsequently (Crisp, 2017). As a result, this population was restocked via a fisheries enhancement program between 2012 – 2016, sponsored by the Swan River Trust, to enhance recreational fishing catch to more sustainable levels. Initial survey results indicated a recovery was in progress, with shoreline habitats including Applecross and Matilda Bay utilised by *M. dalli* breeding individuals until 2016-17 (Crisp, et al., 2018). However, significant unseasonal rainfall event into the Swan catchment during summer 2018/19 likely resulted in populations falling to 3-4% of the previous recorded season (Crisp, et al., 2018; Tweedley , et al., 2019; Poh, et al., 2019). This species is still subject to fishery management by DPIRD and DBCA.

3.13 Shoreline and Foreshore

Both the Matilda Bay and Applecross ferry terminal sites contain riparian vegetation identified as wetland/shorebank vegetation in the site assessment undertaken by GHD (2025) and described as:

> *Estuarine vegetation communities with varying levels of reeds and Melaleuca species, and introduced River Oak (Casuarina cunninghamiana), as well as small sections of Sea Rush (Juncus kraussii). Includes some native and exotic emergent aquatic plants*.

An assessment of coastal processes and hazards to inform terminal design, as well as long-term management and adaptation over the project's 50-year horizon has been undertaken (Seashore Engineering, 2025) and is summarised below (refer to appendix in the Planning Report):

Elizabeth Quay

Jetty extension at Elizabeth Quay will connect to the existing piles; and a diaphragm wall which was designed to support high-rise development. These structures are approximately 10 years old and are likely to be suitable for supporting the jetty, subject to confirmation through design load checks.

Applecross

- Gradual erosion has occurred along the east- and north-facing shorelines adjacent to the proposed terminal site, fronting the Raffles Waterfront
- Current erosion is affecting the western end of the revetment, near a shared path, due to loss of sediment supply.
- The terminal site is proposed at a point where there is limited alongshore sediment movement, and most of the facility is piled, limiting impact on riverbed processes. The modest (~3m) riverward extension beyond the revetment footprint at the terminal, comprising concrete walls around the stairs, ramp, and jetty abutment, is unlikely to materially affect the existing foreshore processes
- However, access to the terminal may be affected by gradual erosion presently occurring to the west and therefore coordination with the City of Melville is recommended.
- The foreshore in the area is low-lying, with path and road levels as low as +1.1 m AHD, making it vulnerable to overtopping and inundation during northerly wind events and elevated water levels. With sea level rise, the frequency of inundation is expected to increase, leading to surface damage along the foreshore and path, and potential disruption to safe access to the terminal during storms.
- To accommodate future raising of the foreshore level, the terminal design should incorporate either localised raising of the path near the landward connection or design the jetty’s landward connection − including the ramp and steps − to allow for future retrofitting to a higher level.

Matilda Bay

- The east-facing embayment of Matilda Bay creates a naturally sheltered, low-energy setting. The shoreline is mainly influenced by easterly wind waves, with alongshore sediment transport varying spatially due to differences in wave exposure along the bay’s arc.
- The bay is naturally sheltered but has experienced 5–10 m of erosion since 1953. In response, limestone block walls have been installed along much of the foreshore, with nearly 80% of the adjacent 550 m of shoreline now retained by these structures. The terminal is located at the southern end of a 70 m gap in the existing walling, where the bank has a more gently graded profile that is less susceptible to scarping.
- Future sea level rise will increase erosion which will impact on mature trees, compromise the integrity of existing walling, and affect site values through scarping and beach loss.
- Mitigation in response to these impacts will be the responsibility of DBCA, which manages the foreshore strip along Hackett Drive. Mitigation options could include managed retreat, continued use of walling to retain the bank position, or enhancement of the beach through renourishment, potentially supported by structural controls
- An unmitigated erosion hazard allowance of 12.8 m at the Terminal has been derived over the 50-year project horizon, based on the principles of State Planning Policy 2.6 (SPP 2.6) and a projected sea level rise of 0.46 m.
- broader Matilda Bay environment, it is recommended that concrete walls be positioned slightly landward of the present design position and embedded to a sufficient depth to accommodate future erosion
- Paths and landscaping should be placed close to protective structures to minimize future adaptation needs.

3.14 Aboriginal Heritage

An Aboriginal Ethnographic and Archaeological Survey was undertaken by AHA Logic (2025) for the Project with key findings, consultation outcomes and recommendations summarised below:

- The survey area is wholly within the Whadjuk alternative settlement area. The Whadjuk Aboriginal Corporation (WAC) manages the Whadjuk Indigenous Land Use Agreement (ILUA) on behalf of the Whadjuk community. The ILUA provides for the Noongar Standard Heritage Agreement (NSHA), which the PTA is a signatory.
- Consultation for the SRFE was undertaken with Whadjuk and Noongar family representatives over two days using a ferry to access and inspect the key locations of the SRFE. The inspection allowed representatives to assess potential impacts from the water and to discuss the scope and nature of proposed works, including riverbed footings for the floating jetties and limited foreshore works.
- No new Aboriginal sites, places, or objects relevant to the Aboriginal Heritage Act 1972 were identified during the survey. The Matilda Bay and Applecross foreshores are already extensively modified, and much of the riverbed in the project area has been altered by historical dredging, reclamation, and maritime activity. As a result, the archaeological potential of the SRFE area is considered very low. However, the cultural and spiritual significance of the Swan River remains, and the project area continues to form part of an active cultural landscape.
- Environmental impacts were also a key concern for the Whadjuk and Noongar representatives, particularly the need to protect fish populations, dolphins, bull sharks, bird species, and overall river health. The Public Transport Authority (PTA) has committed to avoiding dredging, minimising disturbance to the riverbed, using low-impact electric ferries, and retaining healthy vegetation and seagrass wherever possible.
- The Whadjuk and Noongar families representatives concluded that, with appropriate heritage and environmental safeguards, the SRFE could proceed and are not opposed to the PTA seeking the consent of the Minister for Aboriginal Affairs under section 18 of the *Aboriginal Heritage Act 1972*.

Based on the survey findings and consultation outcomes, it was recommended that the PTA:

- Seek consent from the Minister for Aboriginal Affairs pursuant to Section 18 of the *Aboriginal Heritage Act 1972* to install, operate and maintain the ferry terminals at Matilda Bay and Applecross within Aboriginal site ID 3536 Swan River.
- Engage Whadjuk and Noongar families representatives — specifically two representatives drawn on a rotating basis from those consulted during the SRFE heritage survey — to monitor riverbed-disturbing activities and to undertake wildlife spotting during construction.
- Minimise impacts to healthy trees, vegetation and sea grasses where-ever possible.
- Minimise impacts to river wildlife, especially dolphins, sharks and birds, where-ever possible.

3.15 Historic Heritage

The State Heritage Register (inherit database) and the City of Perth Municipal Inventory have indicated that there is one known site of heritage significance (Canning Bridge) within the project area. There is one additional site within vicinity to the project area (Raffles Hotel). Canning Bridge (Site ID: 16178) and the Raffles Hotel (Site ID: 1544) are classified as registered heritage sites under the *Heritage Act 2018* (Figure 9).

The entirety of the Matilda Bay Reserve and an associated Archaeological site (09209) within the area are on the assessment program for consideration by the Heritage Council of Western Australia.

Heritage Impact Statements (HIS) have been prepared to accompany the applications for development approval.

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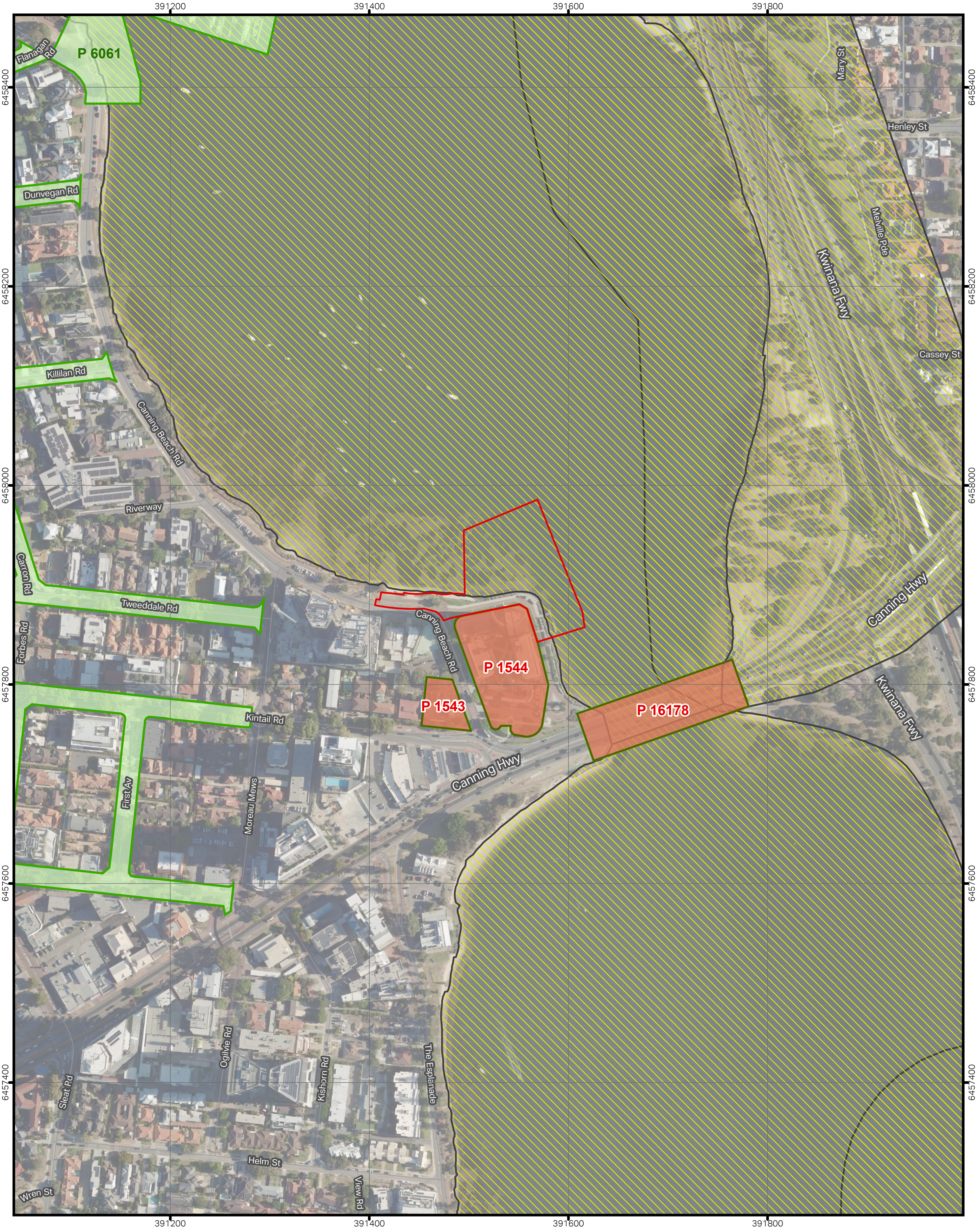
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Kishorn Rd
The Esplanade
Sleat Rd
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LEGEND

- 🟥 Development Area
- ▨ Aboriginal Cultural Heritage - Register (DPLH-099)
- 🟥 Heritage Council WA - State Register (DPLH-006): Individual Place
- 🟩 Heritage Council WA - Local Heritage Survey (DPLH-008)

Heritage:
Applecross Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
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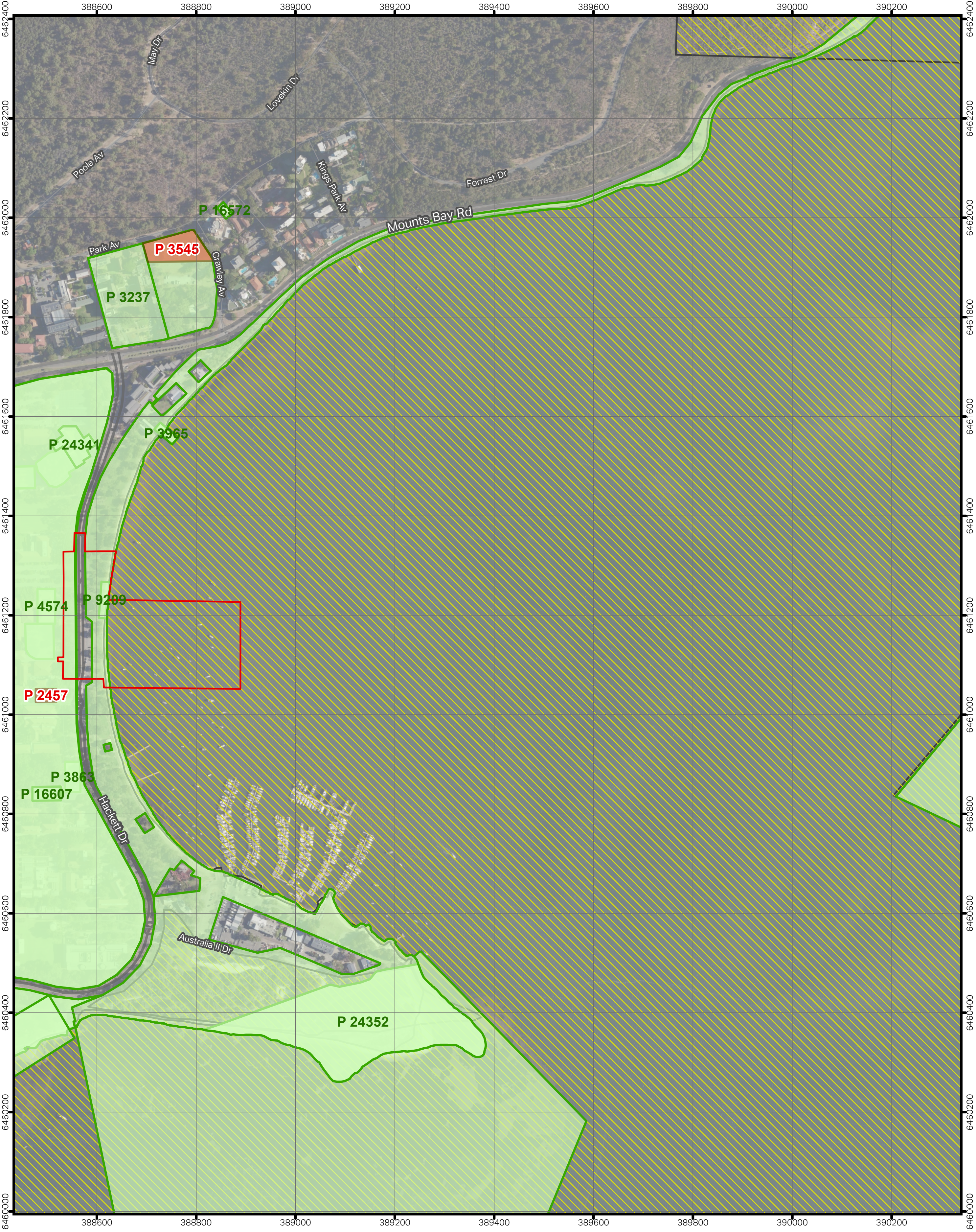
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LEGEND

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🟥	Heritage Council WA - State Register (DPLH-006): Individual Place
🟩	Heritage Council WA - Local Heritage Survey (DPLH-008)

Heritage:
Matilda Bay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
9b

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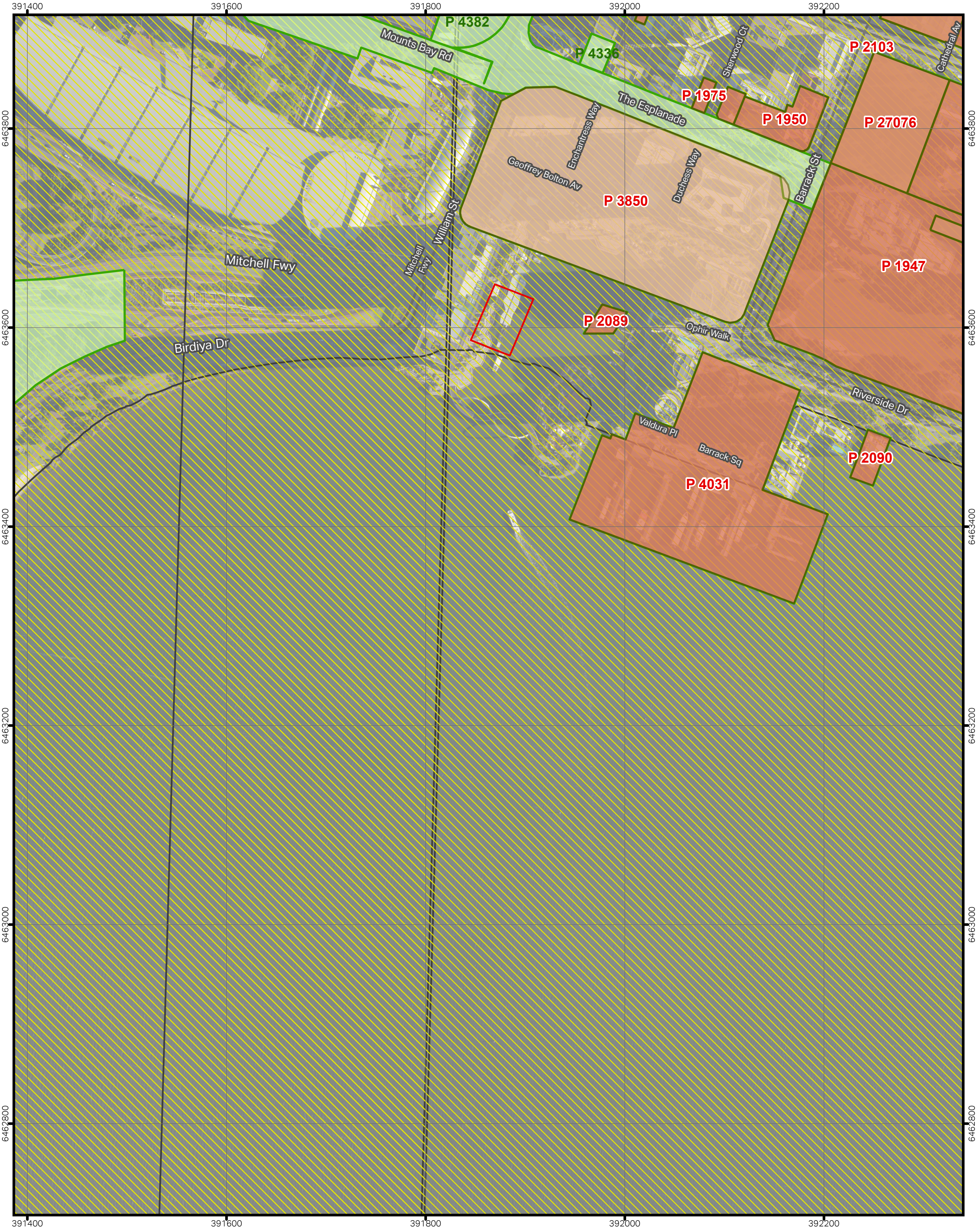
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Valdura Pl
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LEGEND

- 🟥 Development Area
- ▨ Aboriginal Cultural Heritage - Register (DPLH-099)
- 🟥 Heritage Council WA - State Register (DPLH-006): Individual Place
- 🟥 Precinct / Group
- 🟩 Heritage Council WA - Local Heritage Survey (DPLH-008)

Heritage:
Elizabeth Quay Site

PUBLIC TRANSPORT AUTHORITY

METRONET ON SWAN FERRY SERVICE EXPANSION: PERTH TO APPLECROSS

Figure
9c

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3.16 Noise and Vibration

Acoustic noise modelling and an assessment of impacts from the proposed construction and charging activities associated with the development project was conducted by SLR (2025) (attached as an appendix to the planning report). This study addressed the following:

- characterisation of existing aquatic noise environment
- identification of key aquatic sensitive receptors potentially to be impacted by the underwater noise emissions
- identification of major noise sources and their noise emission characteristics, particularly piling activity
- detailed modelling prediction of underwater noise propagations and relevant zones of impact estimates.

Results from this study determined that piling operations required for the Matilda Bay and Applecross ferry terminal sites are predicted to have the highest potential for adverse impact on assessed marine fauna species and human divers and swimmers, in terms of both immediate impact and cumulative impact.

The predicted effects were not deemed to require additional management measures for fish residing within the Swan Estuary Marine Park zones as the Zone of High Impact was restricted to within 20 m of the piling activity, well outside of the BIA range.

Airborne noise and vibration was also considered, involving an assessment of airborne noise emissions and a ground vibration assessment to determine the potential adverse impact on nearby stakeholders (e.g. residents, university students and staff, other users of the Swan River and foreshore area).

3.17 Amenity

The Swan River is a defining feature of Perth’s landscape, offering unique visual and recreational amenity. The river supports a wide range of recreational activities, including kayaking, sailing, cycling, walking, and picnicking, making it an important space for community wellbeing and outdoor enjoyment. Its accessibility and integration with urban and natural environments enhance Perth’s liveability, while also contributing to cultural identity and tourism appeal.

Both the Matilda Bay and Applecross foreshore areas are popular recreational areas for residents, visitors and tourists with infrastructure such as parking, paths, viewpoints, picnic areas and toilets established to encourage use and visitation. Landscaping including areas of maintained lawn is also available to encourage use of the areas. Nearby restaurants and cafes also take advantage of the natural viewsheds.

There are a number of stakeholders that utilise these areas, including the Raffles Hotel, The University of Western Australia Boat Club, Royal Perth Yacht Club as well as other nearby residents and businesses.

Minor and temporary impacts on visual receptors, including to residents and users of the foreshore area will occur during construction of the ferry terminals at Applecross and Matilda Bay. Some disruption to the use of the foreshore and waters around the construction site will also occur during construction.

However both ferry terminals at Applecross and Matilda Bay have been designed to enhance the visual experience and will align with the character of the surrounding urban environment. There will be some loss of recreational area at Matila Bay following construction, primarily for water-based recreation, however the area of impact will be relatively minor in consideration of the broader Matilda Bay area.

Visual impact photomontages have been prepared to support the applications for development approval and to ensure that the development meets the expectation of stakeholders and the community.

For the Elizabeth Quay site the proposed addition will be to existing berthing infrastructure and therefore the works will not impact on existing users of this area and the existing amenity of the area will not be adversely impacted.

A landscape plan has been developed to support the Development Application at Matilda Bay which outlines proposed landscape treatments and plantings to improve the amenity of the final development at Matilda Bay (including new roundabout, bus stands and parking bays).

4.0 Relevant Policy Provisions

A number of policies that guide the implementation of the relevant legislation (Section 2.0) have been considered in the development approach and the content of this report. The relevant policies are summarised below and relevant policy provisions have been addressed in Table 2.

4.1.1 Statement of Planning Policies

Statement of Planning Policies (SPPs) are the highest level of planning policy control in WA. They are prepared under Part 3 of the Planning and Development Act 2005 and provide guidance on land use planning and development across the state. Relevant SPPs that have been considered in this report include:

- Statement of Planning Policy 2.10: Swan-Canning River System
- Statement of Planning Policy 2.0: Environment and Natural Resources Policy
- Statement of Planning Policy 2.6: State Coastal Planning Policy.

4.1.2 DBCA Corporate Policies

DBCA Corporate Policies are formal policy statements that define the department’s position on various operational and environmental matters, provide principles and rules to guide staff and stakeholders, and ensure consistency and accountability in the department’s actions. Relevant DBCA policies that been considered in this report include:

- DBCA Corporate Policy 42: Planning for Land Use, Development and Permitting Affecting the Swan Canning Development Control Area
- DBCA Policy 44: Planning for Jetties in the Swan Canning Development Control Area
- DBCA Policy 45: Planning for Miscellaneous Structures and Facilities in the Swan
- DBCA Policy 49: Planning for Stormwater Management Affecting the Swan Canning Development Control Area

Table 2 Consideration of Relevant Policies

Relevant Policy	Policy Provision	Response – Addressed by this DA
WAPC Policies		
Statement of Planning Policy 2.0: Environment and Natural Resources Policy	(5.1) General Measures Planning strategies, schemes and decision making should: (i) *Avoid development that may result in unacceptable environmental damage.* (ii) *Actively seek opportunities for improved environmental outcomes including support for development which provides for environmental restoration or enhancement.* (iv) *Protect significant natural, indigenous and cultural features, including sites and features significant as habitats and for their floral, cultural, built, archaeological, ethnographic, geological, geomorphological, visual or wilderness values.* (vii) *Take account of the potential for on-site and off-site impacts of land use on the environment, natural resources and natural systems.* (x) *Support conservation, protection and management of native remnant vegetation where possible, to enhance soil and land quality, water quality, biodiversity, fauna habitat, landscape, amenity values and ecosystem function.*	• The proposed development has been designed to be compatible with the foreshore setting and will provide social benefits to the community by facilitating enhanced river transport services for residents, workers, tourists and recreational users. • The siting, footprint, height, bulk and scale of the proposed development has been carefully considered to minimise visual impact on the overall riverine environment from key vantage points, as demonstrated in photomontages outlined in the planning report. • The proposed development will provide opportunities to enhance the Matilda Bay setting through provision for additional landscaping to be developed as part of further detailed design. The proposed development has been designed to minimise impact on the natural environment. • The PTA is undertaking necessary steps to determine the requirement for separate environmental and Aboriginal cultural heritage approvals that are dealt with under separate legislation. • A Construction Environmental Management Plan (CEMP) will be prepared an implemented in consultation with DBCA as a condition on the Development Approval that will ensure construction activities do not result in any erosion and/or discharge of pollutants into the river system and that any adjacent or nearby wildlife habitats are protected during construction. The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP).
	(5.2) Water Resources Planning strategies, schemes and decision making should: (i) *Consider mechanisms to protect, manage, conserve and enhance:* *(a) wetlands of importance, Ramsar wetlands and wetlands identified in any relevant Environmental Protection Policy;* *(b) waterways;* *(c) estuaries;* *(d) marine environments;* (iv) *Ensure the provision of adequate setbacks between development and the foreshores of wetlands, waterways, estuaries and the coast, in order to maintain or improve the ecological and physical function of water bodies. Such setbacks will aim to maintain the natural drainage function, protect wildlife habitats and landscape values, lessen erosion of banks and verges, and facilitate filtration of sediment and waste associated with surface run-off from adjacent land uses, which may include retention or replacement of riparian vegetation.*	• The proposed development has been designed to be compatible with the foreshore setting and will provide social benefits to the community by facilitating enhanced river transport services for residents, workers, tourists and recreational users. • A CEMP will be prepared and implemented in consultation with DBCA as a condition on the Development Approval that will include measures to ensure construction activities do not result in runoff of pollutants or sediments into the river during construction activities. The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP). • A Foreshore management Plan (FMP) will be prepared and implemented for the Matilda bay DE in consultation with DBCA as a condition on the Development Approval that will include measures to ensure erosion of the foreshore is minimised following construction. The FMP will also include details on management of stormwater in accordance with the Water Sensitive Urban Design (WSUD) principles as outlined in the Stormwater Management Manual WA (DWER, 2022) and will ensure the capture and treatment of first flush events prior to discharge into the river. The FMP will be developed in consideration of the 'Guidelines for developing foreshore management plans in the Swan Canning Riverpark' issued by the Swan River Trust (2012). • Landscaping treatments will also be outlined in a Landscape Plan that reflects the native environment and existing amenity.
	(5.5) Biodiversity Planning strategies, schemes and decision-making should: (i) Consider mechanisms to protect areas of high biodiversity and/or conservation value, including: a. *land vested in the Conservation Commission as national park, nature reserve, conservation park or other reserve, and land acquired and managed by the Department of Conservation and Land Management (CALM) pending formal reservation;* b. *land and waters vested in the Marine Parks and Reserves Authority as marine park, marine nature reserve or marine management area, and areas identified in the Report of the Marine Parks and Reserves Selection Working Group;*	• Three areas of the Swan Estuary Marine Park are located in relative proximity to the Applecross and Matilda Bay sites (Alfred Cove, Pelican Point and Milyu). None of these areas are expected to be impacted by the project, however measures to minimise any potential impacts to water quality and Marine Fauna that may have indirect impacts to the Marine Park will be managed through the implementation of a CEMP. The CEMP will be prepared an implemented in consultation with DBCA as a condition on the Development Approval and will ensure construction activities do not result in any erosion and/or discharge of pollutants into the river system and that any adjacent or nearby wildlife habitats are protected during construction. The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP). • The Matilda Bay site will also require some development within the Matilda Bay Reserve (R 17375), listed as an 'A Class' reserve for the purpose of recreation and vested with the Conservation and Parks Commission. The project is considered to be consistent with the stated purpose of the reserve and any potential impacts will be appropriately managed through the implementation of a CEMP. • The proposed development will provide opportunities to enhance the Matilda Bay setting through provision for additional landscaping to be developed as part of further detailed design. The proposed

Relevant Policy	Policy Provision	Response – Addressed by this DA
		development has been designed to minimise impact on the natural environment, including to any land vested in the Conservation Commission.
Statement of Planning Policy 2.10: Swan-Canning River System	(7.2.1) The dynamic nature of the river, including its waters, floodplain, sustaining vegetation and habitats, should be taken into account when planning land use and development so as to ensure the long-term health and value of the river.	- The proposed development has been designed to minimise impact on the natural environment, and while there will be no or minimal remnant native vegetation impacted by the developments (including bushland or fringing vegetation), a CEMP will be prepared and implemented as a condition on the Development Approval (in consultation with DBCA). The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP). The CEMP will outline measures to avoid or minimise impacts on any identified environment values.
	(7.2.4) Fringing vegetation serves an important biological function and adds value to the river ecosystem. There is a general presumption against the clearing of native and other vegetation within the river area unless otherwise determined by a precinct plan or if there is a demonstrated problem such as weed invasion.	
	(7.2.5) The protection and re-establishment of fringing riparian vegetation should be promoted as a means of stabilising riverbanks, providing wildlife habitat, intercepting nutrients, providing shade and improving river water quality.	
	(7.2.6) The protection and re-establishment of wetlands, tributaries and bushland associated with the river should be promoted.	
	(7.2.7) Dredging and deliberate channel disturbance is to be prevented or minimised.	- No dredging is currently proposed as part of the development works. Any impacts to benthic habitat will be minimised as much as possible through the preparation and implementation of a CEMP as a condition on the Development Approval in consultation with DBCA.
	(7.2.8) Dredging will only be supported to maintain river function, re-establish former water conditions and maintain existing navigation channels. In all instances dredging must not result in disproportional adverse impact on the health of the river and will require a development approval.	
	(7.2.9) Water sensitive urban design principles should be incorporated in proposed developments. In doing so, natural flow regimes are to be generally preferred over artificial systems.	- A FMP will be prepared and implemented within the Matilda Bay DE in consultation with DBCA as a condition on the Development Approval that will include details on management of stormwater in accordance with the Water Sensitive Urban Design (WSUD) principles as outlined in the Stormwater Management Manual WA (DWER, 2022) and will ensure the capture and treatment of first flush events prior to discharge into the river. Where possible stormwater will be directed into existing stormwater infrastructure. - A CEMP will be prepared an implemented in consultation with DBCA as a condition on the Development Approval that will include measures to ensure construction activities do not result in runoff of pollutants or sediments into the river during construction activities. The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP).
	(7.3.1) The natural and cultural heritage values of the river should be protected and enhanced.	- The proposed development has been designed to minimise impact on the natural environment, with no requirement for river dredging and all works to be undertaken in accordance with a CEMP that will be developed in collaboration with the DBCA. The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP). - The PTA is undertaking necessary steps to determine the requirement for separate environmental and Aboriginal cultural heritage approvals that are dealt with under separate legislation.
	(7.3.2) Consideration of Aboriginal and European based cultural and natural heritage values should be taken into account when planning and determining proposals within the river area.	
	(7.4.8) Land adjacent to the river should be available for public access, recreation and conservation of the river.	- The proposed development has been designed to be compatible with the foreshore setting and will provide social benefits to the community by facilitating enhanced river transport services for residents, workers, tourists and recreational users. - The siting, footprint, height, bulk and scale of the proposed development has been carefully considered to minimise visual impact on the overall riverine environment from key vantage points. - A Landscape Plan has been prepared to guide a landscape response that will improve visual amenity in consideration of the existing natural values of the foreshore.
	(8.4.2) Planning decisions in this area should: ensure that development and river uses do not degrade the visual amenity and conservation value of the natural landscape, particularly within significant areas such as the Canning River Regional Park.	

Relevant Policy	Policy Provision	Response – Addressed by this DA
Statement of Planning Policy 2.6: State Coastal Planning Policy	(5.10) Coastal strategies and management plans: (i) Ensure that a rezoning, structure planning, subdivision or development – whichever arises first and is appropriate in scale, a coastal planning strategy or coastal foreshore management plan is prepared and implemented, by the local government and/or proponent, for the coastal foreshore reserve and any abutting freehold land with conservation values of the subject land. (ii) Any structure plan, zoning, subdivision, strata subdivision or development proposal for public purposes, residential, industrial, commercial, tourist, special rural and similar uses on the coast is only approved based on o in conjunction with a current detailed coastal planning strategy or foreshore management plan (whichever is appropriate for the stage and scale of development). (iii) Ensure that the coastal planning strategy or foreshore management plan is developed in consultation with the broad community and relevant public authorities, and achieve the approval of the local land manager and the WAPC if appropriate.	• A coastal processes investigation has been undertaken by Seashore Engineering (2025). The assessment found that the proposed new ferry terminals at Applecross and Matilda Bay are expected to have relatively minor impacts on coastal processes, based on their interaction with existing morphology, foreshore and bed dynamics, and active sediment transport pathways. • A FMP will be prepared and implemented in consultation with DBCA for the Matilda Bay DE as a condition on the Development Approval that will include measures to ensure erosion of the foreshore is monitored and minimised following construction. The FMP will be informed by the coastal processes assessment and will be guided by the 'Best management practices for foreshore stabilisation' prepared by the Swan River Trust (2009). The FMP will also be developed in consideration of the 'Guidelines for developing foreshore management plans in the Swan Canning Riverpark' issued by the Swan River Trust (2012) and SPP 2.6. • Elizabeth Quay already has a modified hard edge constructed foreshore and the development will not impact on the integrity of this infrastructure.
DBCA Policies		
DBCA Corporate Policy 42: Planning for Land Use, Development and Permitting Affecting the Swan Canning Development Control Area	(5.1) Provide support, advice and decisions which protect and enhance the Swan Canning River system's ecological health. This includes maintaining tributary and stream habitats and their natural drainage functions, reducing nutrient enriched and polluted water inputs from adjacent land uses, minimising erosion of stream banks and protecting wetland ecosystems and associated wildlife habitats.	• A Construction Environmental Management Plan (CEMP) will be prepared an implemented in consultation with DBCA as a condition on the Development Approval that will ensure construction activities do not result in any erosion and/or discharge of pollutants into the river system and that any adjacent or nearby wildlife habitats are protected during construction. The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP). • A Foreshore Management Plan (FMP) will be prepared and implemented for the Matilda Bay DE in consultation with DBCA as a condition on the Development Approval that will include measures to ensure erosion of the foreshore is minimised following construction. The FMP will be informed by the coastal processes assessment that has been prepared and will be guided by the 'Best management practices for foreshore stabilisation' prepared by the Swan River Trust (2009). The FMP will also be developed in consideration of the 'Guidelines for developing foreshore management plans in the Swan Canning Riverpark' issued by the Swan River Trust (2012).
	(5.5) Where necessary, require the preparation and implementation of a Construction Environmental Management Plan, as a condition of approval, to manage environmental impacts associated with a land use or development.	• A CEMP will be prepared an implemented in consultation with DBCA as a condition on the Development Approval that will aim to manage any potential environmental impacts associated with development. The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP).
DBCA Policy 44: Planning for Jetties in the Swan Canning Development Control Area	(5.9) Require applications for jetties to demonstrate that they are minimising and managing effects on the landscape character and amenity of the DCA. Applicants will likely be required to provide information or details regarding: *lighting so that it is fit-for-purpose and will not interfere with vessel navigation, adversely affect the amenity of the area, or unacceptably alter the natural patterns of light and dark;*	• Engineering design for jetties to include minimum suitable lighting intensity that is fit-for-purpose so that it meets relevant Australian Standards and safety requirements. Lighting can be used to highlight the features of the infrastructure as a means of enhancing the amenity of the area. Where practicable, in areas of habitat or conservation significance unnecessary light spill should be minimised and lamp types selected to minimise adverse impacts on fauna. Design to incorporate the Guide on the Limitation of Effects of Obtrusive Light from Outdoor Lighting Installations (CIE 2003).
	(5.14) Require applications for jetties to include a methodology and management plan that addresses how the construction work is to be undertaken to ensure best possible protection of the ecological health, community benefit, and amenity of the DCA. Applicants will likely be required to provide site specific details including: *identification and protection of habitat and fauna, both in-water and on land; consideration of the use of a vibration piler for pile installation, instead of a drop hammer, with a soft start-up and use of a marine mammal observer; minimisation of potential habitat loss and mitigation of impacts on associated species for pile replacement works*	• A CEMP will be prepared an implemented in consultation with DBCA as a condition on the Development Approval that will detail measures to identify and protect any habitat and fauna that may be impacted by the works. This will include a soft start procedure for piling activities and the use of marine mammal observers during operations at a minimum. The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP).

Relevant Policy	Policy Provision	Response – Addressed by this DA
DBCA Policy 45: Planning for Miscellaneous Structures and Facilities in the Swan Canning Development Control Area	(5.10) Have a preference for riverbank stabilisation that uses natural or bioengineering measures to complement the dynamic nature and ecological values of the river system. Applicants should have due regard for the department's Best Management Practices for Foreshore Stabilisation (2009).	• A FMP will be prepared and implemented for the Matilda Bay DE in consultation with DBCA as a condition on the Development Approval that will include measures to ensure erosion of the foreshore is minimised following construction. The FMP will be informed by the coastal processes assessment that has been prepared and will be guided by the 'Best management practices for foreshore stabilisation' prepared by the Swan River Trust (2009). The FMP will also be developed in consideration of the 'Guidelines for developing foreshore management plans in the Swan Canning Riverpark' issued by the Swan River Trust (2012).
DBCA Policy 49: Planning for Stormwater Management Affecting the Swan Canning Development Control Area	(5.3) Apply DWER's Stormwater Management Manual for Western Australia (Stormwater Manual) and Decision Process for Stormwater Management in Western Australia (Decision Process). In this respect: *stormwater management systems are to be designed to protect and enhance the ecological and hydrological functions and amenity of the river system* *stormwater runoff from constructed impervious surfaces generated by the first 15 mm of rainfall should be managed (retained and/or detained and treated (if required)) at the runoff source (on lots and in road reserves) as much as practical;*	• A FMP will be prepared and implemented for the Matilda Bay DE in consultation with DBCA as a condition on the Development Approval that will include details on management of stormwater in accordance with the Water Sensitive Urban Design (WSUD) principles as outlined in the Stormwater Management Manual WA (DWER, 2022) and will ensure the capture and treatment of first flush events prior to discharge into the river. Where possible stormwater will be directed into existing stormwater infrastructure. • A CEMP will be prepared an implemented in consultation with DBCA as a condition on the Development Approval that will include measures to ensure construction activities do not result in runoff of pollutants or sediments into the river. The CEMP will be prepared in accordance with DBCA Guidance Note 1 – Construction Environmental Management Plan (CEMP). • Construction activities will not currently require the excavation of more than 100 cubic metres of soil and no dewatering or drainage will be required. Therefore in accordance with the Acid Sulfate Soil Planning Guidelines (2008), an ASS investigation or management is not required. However should this change as project design progresses then the appropriate investigation and management will be outlined in accordance with the guidelines and captured in the CEMP.
	(5.9) Require applicants demonstrate that land use changes or development will not mobilise contaminants or nutrients from the soil or groundwater to the river system as a result of the stormwater management practices.	
	(5.12) Recommend the design and construction of stormwater management systems be managed to avoid environmental impacts from the disturbance of acid sulfate soils. The WAPC's Acid Sulfate Soils Planning Guidelines identify matters that need to be addressed at various stages of the planning process to ensure that the subdivision and development of land containing acid sulfate soils is planned and managed to avoid potential adverse effects on the natural and built environment.	

5.0 Development Impacts and Management

The construction of the jetty and berthing facilities at Applecross and Matilda Bay and the extension of the existing Elizabeth Quay site may result in impacts to the environmental and social/heritage values that have been identified above. The construction activities and method that are likely to be undertaken are summarised below.

5.1 Construction Activities

Construction activities are likely to include:

Terrestrial

- Erection of site offices, ablutions, laydown areas and equipment storage areas.
- Landside site works including clearing of any vegetation and minor earth-working/site levelling.
- Installation of electrical infrastructure (substation), transformer and switchboards and associated infrastructure landside (Matilda Bay only).
- Demolition of the existing public toilets and construction of new public toilets (Matilda Bay only)
- Construction of bike storage facilities (Matilda Bay only)
- Development of a bus-turnaround at Matilda Bay, including demolition of sections of existing road and car-parking and laying of asphalt and concrete kerbing/round-about, bus slip-lane and pick up points and bus shelters.
- Installation of concrete pathway access and walkway to jetty/berthing facilities.
- Landscaping post completion of landside works.

Marine

- Establish mooring point for construction barge vessel.
- Piling of support posts and landings for fixed walkways, jetty and waiting area.
- The fixed jetty and walkway element for Matilda Bay will extend approximately 50m into the river from the shoreline, consisting of concrete flooring panels on concrete beams attached to steel piles.
- The fixed jetty and walkway element for Applecross will extend approximately 35m into the river from the shoreline, consisting of concrete flooring panels on concrete beams attached to the steel piles.
- Matilda Bay: installation of two access gangways to floating pontoons providing passenger access to ferries and berthing for up to 4 ferries.
- Applecross: installation of a single access gangway to a floating barding pontoon for passenger access for one ferry.
- Recontouring of shallow river sections to ensure sufficient navigable depth clearance for ferry access (if required). This is likely to include minor vacuum sediment removal in localised areas which will ensure only minor sediment dispersal and minimal disturbance to benthic habitats.

5.2 Construction Method

The likely construction method for Matilda Bay and Applecross is summarised below:

Matilda Bay:

- The construction method will predominantly be from the water via barge.
- Initial works will be conducted from the shore for the connection and driving of the first piles.

Applecross:

- Construction will be via overhand construction method, working from the shore out as the structure is developed.

Elizabeth Quay:

The fixed platform is expected to be attached to the existing diaphragm wall.

Table 3 below provides an overview of the likely impacts to the environmental and social values identified, along with proposed management responses to demonstrate alignment with the relevant DBCA and WAPC policies and guidance for development within and adjacent to the Swan Canning River DCA.

Table 3 Potential Impacts and Proposed Management

Relevant Matter	Potential Impacts	Proposed Management or Mitigation Response
Flora and Vegetation	• Direct loss of planted vegetation at Matilda Bay through clearing and removal to enable construction activities. The tree species within the Matilda Bay development area identified by GHD (2025) include Paperbark species (Melaleuca sp.), Peppermint (*Agonis flexuosa*) and Casuarina sp. as well as isolated individual Jarrah, Marri and Tuart tree species. • Indirect loss of native vegetation during construction due to trampling or laydown of equipment. • Indirect loss of native vegetation due to introduction of weeds from construction activities and equipment. • Indirect impacts to native vegetation due to the introduction of rubbish during construction. • Given the absence of intact remnant vegetation and any EPBC and DBCA listed flora species and vegetation communities, project activities are not expected to have a significant impact on flora and vegetation.	Preparation and implementation of site specific Construction and Environmental Management Plans (CEMPs), with measures including: • Delineation and fencing of project boundary to ensure no impacts to flora or fauna habitat outside the approved project footprint. • Implementation of tree protection measures for any trees that will be retained in close proximity to the works in accordance with *AS4970 – Protection of Trees on Development Sites*. • Ensure all vehicles and equipment entering the site are ‘clean on entry’ and free of any vegetative matter to minimise the distribution of weeds. • Ensure all contractors are aware of the environmental sensitivity of the surrounding environment and are adequately briefed prior to commencement of works on required management measures and the requirement to stay within the site boundary. • Implement speed restrictions for the movement of vehicles around the site to minimise the risk of fauna collisions. • A Landscape Plan that has been prepared to support the DA will outline replacement of any trees that are removed associated with construction and will include planting of mostly native species in the landscaping design.
Terrestrial Fauna	• Direct loss of fauna habitat through clearing and removal to enable construction activities. • Direct loss up of 29 potential nesting trees for black cockatoos and 0.88 ha of low to moderate quality foraging habitat for Forest Red Tail Black Cockatoos at Matilda Bay. • Indirect loss of fauna habitat during construction due to trampling or laydown of equipment. • Indirect loss of fauna habitat due to introduction of weeds from construction activities and equipment. • Indirect impacts to fauna habitat due to the introduction of rubbish during construction. • Injury or death to fauna as a result of construction works, including vehicle strikes and laydown of equipment. • Given the condition of the project area, project activities are not expected to have significant impacts on any terrestrial fauna species or their habitats. • Impacts of artificial lighting used to illuminate the jetties and terminals at night are not likely to have a significant impact on terrestrial fauna given the extensive existing artificial light in proximity to the new jetties. • Habitat for conservation significant fauna will not be significantly impacted by the proposal.	Preparation and implementation of site specific CEMPs, with measures including: • Delineation and fencing of project boundary to ensure no impacts to flora or fauna habitat outside the approved project footprint. • Implementation of tree protection measures for any trees that will be retained in close proximity to the works in accordance with *AS4970 – Protection of Trees on Development Sites*. • Ensure all vehicles and equipment entering the site are ‘clean on entry’ and free of any vegetative matter to minimise the distribution of weeds. • Ensure all contractors are aware of the environmental sensitivity of the surrounding environment and are adequately briefed prior to commencement of works on required management measures and the requirement to stay within the site boundary. • Implement speed restrictions for the movement of vehicles around the site to minimise the risk of fauna collisions. • Use and intensity of artificial lighting at night during construction will be minimised as much as possible without compromising safety requirements. • A Landscape Plan that has been prepared to support the DA will outline replacement of any trees that are removed associated with construction and will include planting of mostly native species in the landscaping design to provide some fauna habitat replacement.

Relevant Matter	Potential Impacts	Proposed Management or Mitigation Response
Marine Fauna	• Research on the noise impact on Indo-Pacific bottlenose dolphins is limited, but studies suggest they may be sensitive to pile-driving and vessel noise, affecting their movement, behaviour, and vocalizations rather than causing severe physiological harm. Assessment criteria for these dolphins follow those for high-frequency (HF) cetaceans. While the Swan River estuary is not known to host other cetacean hearing groups, noise modelling has conservatively considered all auditory thresholds to ensure protection of any future species identified, allowing for proactive management of underwater noise impacts. Localised and temporary changes to underwater soundscape effecting foraging activity of marine fauna. • Local and temporary changes to ambient noise effecting marine fauna natural behaviours. • The underwater noise acoustic modelling (SLR, 2025) determined that piling operations have the highest potential for adverse impact on marine fauna species, in terms of both immediate impact and cumulative impact. A range of management measures were proposed. • There is currently no direct evidence that non-impulsive noise, such as from dynamic positioning systems (DPS), causes mortality in fish, but it can interfere with their behaviour by masking important sounds, including those related to foraging and predator avoidance. The U.S. National Marine Fisheries Service (NMFS) uses a general behavioural disturbance threshold of 150 dB re 1 μPa for fish, though its origin is less defined than other thresholds. For sea turtles, behavioural disturbance is generally observed around 175 dB re 1 μPa, though data is limited and thresholds are not species-specific. • However, the predicted effects were not deemed to require additional management measures for fish residing within the Swan Estuary Marine Park zones as the Zone of High Impact was restricted to within 20m of the piling activity, well outside of the BIA range. • The environmental noise assessment (SLR, 2025b) comprised underwater noise modelling, an assessment of airborne noise emissions and a ground vibration assessment and also concluded that piling operations are predicted to have the highest potential impact on marine species. However, it was determined that if appropriate mitigation measures are implemented, the Project can be managed to comply with noise regulations. • Wave Wake Analysis was also undertaken for the area to determine the impacts of boat wake on shorelines and surrounding environments. Results from this study determined that at a vessel speed of 5 to 10 knots and at 20 knots, wake wash generated is less than the wind wave height produced for 20 knot winds. This comparison is consistent for distances of 60m at an operating speed of 8 knots and 90m at an operating speed of 20 knots or more. The study considered water depth and results indicated that in shallow waters, operating speeds of 12 to 16 knots within 60m or less of other vessels and vulnerable infrastructure, increased wave wash. However, due to speed restrictions in shallow water areas of 8 knots, vessels will not be operating at these higher speeds in these shallow water areas. • Artificial lighting on the jetty terminals or construction equipment may cause behavioural changes to marine fauna.	A site specific CEMP will be prepared for each site prior to construction commencing for approval by the DBCA and WAPC, informed by guidance from DBCA CEMP guidance Note 1 (DBCA, 2024) and the two noise assessments. This will comprise of measures including: • Soft start procedure for piling activities • Marine Mammal observers present during operations • Piling startup delay requirements when dolphins swim within 200m of the construction site • Piling shut down if dolphins are observed within 50m of the site and cannot recommence until dolphins more to more than 200m or not observed for more than 20mins in the vicinity of works. This may be extended further upon consideration of modelling impacts of piling activity. • Compare modelling effects with additional guidance on underwater noise thresholds, described in the Underwater Noise Piling Guidelines (Government of South Australia, 2012) and advice from SLR (2025). • Municipal waste and construction waste use Waste Management plan. • Construction and tender vessels to adhere to navigational speed restrictions outlined in navigational charts. • Construction vessel (piling) or barge to exercise marine mammal observations during transit and construction activities. Additional measures include: • Explore alternative piling methods and physical mitigation measures such as bubble curtains, isolation casings and double pile sleeves. These approaches can significantly reduce residual impacts, for example, replacing a hydraulic hammer with a vibration hammer can reduce the impact zone for Indo-Pacific bottlenose dolphins by up to tenfold (SLR, 2025). • Assessment of noise propagation and determination of noise thresholds for the receiving environment. • Hydrocarbon releases to follow the International Convention for the Prevention of Pollution from Ships (MARPOL) management planning. • Engineering design for jetties to include minimum suitable lighting intensity that is fit-for-purpose so that it meets relevant Australian Standards and safety requirements. Lighting can be used to highlight the features of the infrastructure as a means of enhancing the amenity of the area. Where practicable, in areas of habitat or conservation significance unnecessary light spill should be minimised and lamp types selected to minimise adverse impacts on fauna. Design to incorporate the Guide on the Limitation of Effects of Obtrusive Light from Outdoor Lighting Installations (CIE 2003).

Relevant Matter	Potential Impacts	Proposed Management or Mitigation Response
Marine Water Quality	While the proposed construction works are not expected to detrimentally impact water quality potential impacts include: • Changes in water quality as a result of spills and waste release from construction vessels. • Mobilisation of sediments causing decreased light availability to benthic primary producing habitats. • Mobilisation of sediments from construction activity causing changes to water toxicant values. • Mobilisation of sediments as a result of mooring removal. • Increases in analytes such as metals, organochlorine (OC) pesticides and polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and glyphosate from vessel movements, pile driving and installation of other infrastructure. These increases may harm the surrounding aquatic life and ecosystem processes. • Throughout the entire Swan-Canning Estuary five contaminants have been found to exceed the ISQGs which were zinc, copper and lead metals, the organochlorine pesticide DDE and PCBs. Within the Matilda Bay and Applecross project sites, no contaminants were found to exceed the ISQGs. • Stormwater runoff into the river during construction or from the development of additional hardstand areas result in increased turbidity and the release of nutrients and other contaminants into the river. • Construction activities will not require the excavation of more than 100 cubic metres of soil and no dewatering or drainage will be required. Therefore, an ASS investigation or management is not required. However, it is recommended that the contractor have contingency measures in place in the event that ASS is exposed during works.	A site specific CEMP will be prepared for each site prior to construction commencing for approval by DBCA which will include measures such as: • Installation of silt fencing to capture any sediment runoff from the construction site into the river. • Ensure impacts to the sandy areas of the foreshore are minimised and fenced off to avoid having lay-down areas or equipment movement across the foreshore that may disturb sand and sediments. • Municipal waste and construction waste management. • Contingency measures and regular monitoring of acidity during piling and recontouring works. Should pH levels indicate the exposure of ASS beyond agreed thresholds, then works will cease until the cause can be investigated and if required contingency measures implemented in consultation with DBCA (such as the application of lime). • Oil spill response plan for construction activities. • Derivation of TSS thresholds and measurement of TSS concentrations during construction. • Assessment of sediment toxicant concentrations and their risks if disturbed to receiving environments to be completed, with assessment of suitability for disturbance and disposal. • Toxicant thresholds may need to be derived for Construction and Environmental Management Plan if desktop review of sediment and water quality reports indicates further management requirements. A Foreshore Management Plan (FMP) will be prepared for the Matilda Bay DE prior to construction commencing for approval by WAPC and DBCA. This plan will include details on management of stormwater in accordance with the Water Sensitive Urban Design principles and will ensure the capture and treatment of first flush events prior to discharge into the river. Where possible stormwater will be directed into existing stormwater infrastructure. The project will follow the International Convention for the Prevention of Pollution from Ships (MARPOL) management planning. Water quality sampling surveys of the project areas is currently being conducted. These surveys will assist in determining the requirement for any other specific management requirements and provide baseline data for comparison monitoring during and post development.
Conservation Reserves	• Pelican Point and Milya form part of the Swan Estuary Marine Park, a biologically important area (BIA) under State jurisdiction. • Potential impacts to this area include reduced light availability to benthic primary producers due to mobilisation of sediments from vessels and construction activity	A site specific CEMP will be prepared for each site prior to construction commencing for approval by DBCA which will include measures such as • Preventative use of silt curtains or similar for TSS mobilisation. • Pre- and post-survey of benthic habitats within the project areas to confirm if habitat disturbance and smothering effects have occurred on benthic primary producing communities. Conduct Case study reviews of similar works to assess effects of construction activity on Total Suspended Sediments (TSS) mobilisation and potential requirements for further data and management. If study indicates that monitoring is required during construction, TSS thresholds must be derived for assessment via modelling.

Relevant Matter	Potential Impacts	Proposed Management or Mitigation Response
Benthic Habitat	• Permanent loss of benthic primary producing habitat (seagrass) from Zone of High Impact due to construction footprint. • Mobilisation of sediments from construction vessel movement and/or piling activity, causing increased total suspended sediment (TSS) within the water column, reducing available light for benthic primary producing habitats (seagrass). • Mobilisation of sediments from construction vessel movement and/or piling activity, causing smothering effects of benthic primary producing habitats (seagrass) downstream of DEs. • Benthic habitat loss in composition and percent cover from hydrocarbons releases and/or shipborne municipal waste. • Construction within the project areas is not expected to impact significant areas of seagrass or macroalgae, and management measures will be put in place to ensure any construction impacts are retained within the construction footprints	A site specific CEMP will be prepared for each site prior to construction commencing for approval by DBCA, and will include measures such as: • Municipal waste and construction waste use Waste Management plan • Derivation of TSS thresholds • Use of silt curtains or similar as a mitigation or prevention measure for spread of TSS. Additional management measures proposed: • Assessment of mapped impacts from construction footprint to sediments conducive to seasonal seagrass establishment. • Potential application for Part V clearing permit as part of DA for seagrass only. • Desktop assessment of risk from dispersion for sediments in the Development Envelope, into potential sensitive receiving environments. If risk/s identified, modelling of ecosystem changes to TSS and subsequent smothering by settled sediments in a receiving environment will be required. If from modelling, do TSS monitoring during construction under defined thresholds (likely only required if dredging occurs). • Pre- and post-disturbance survey of benthic habitats to confirm habitat disturbance and smothering effects are mitigated, the effects of reduced light on growth of benthic primary producing communities. • Hydrocarbon releases to follow the International Convention for the Prevention of Pollution from Ships (MARPOL) management planning. A benthic habitat survey is currently being carried out by BMT at the Matilda Bay and Applecross project areas, which will provide further information on the potential impact of the proposed works on areas that may be suitable for seasonal seagrass colonisation.
Coastal Erosion	Potential coastal erosion impacts were considered in the desktop assessment of coastal processes (Seashore Engineering, 2025) which are summarised below: • The proposed new ferry terminals at Applecross and Matilda Bay are expected to have relatively minor impacts on coastal processes, based on their interaction with existing morphology, foreshore and bed dynamics, and active sediment transport pathways. This is primarily due to: ○ The shore-based elements (i.e. jetty abutments) being positioned landward of the existing shoreline at Matilda Bay and within an existing revetment footprint at Applecross, limiting potential interruption of sediment transport; ○ Facilities consisting of piled structures, with sheltering effects largely associated with berthed vessels and floating jetties, causing only slight reductions in wave and surface current energy on the lee side; and ○ Existing speed limits and vessel approaches ensure boat wakes generate waves smaller than the ambient wind wave climate, with impacts at Applecross primarily confined to the already walled foreshore areas. • During construction, a temporary silt curtain at the Applecross and Matilda Bay sites will be used which may prevent some water and sediment flow. However, this impact would be small in scale and temporary and would not lead to permanent changes in coastal processes.	Site specific CEMPs will be developed for approval by DBCA prior to commencement of site works and will include: • Management to ensure sediment from the construction site does not runoff into the river or cause erosion of the shoreline will be implemented and outlined in a CEMP to be approved by DBCA prior to construction commencing. A FMP will also be prepared and implemented for the Matilda Bay DE in consultation with DBCA for the Matilda Bay site as a condition on the Development Approval that will include measures to ensure erosion of the foreshore is minimised following construction. The FMP will be informed by a coastal processes assessment and will be guided by the ‘Best management practices for foreshore stabilisation’ prepared by the Swan River Trust (2009) and SPP 2.6. The FMP will also be developed in consideration of the ‘Guidelines for developing foreshore management plans in the Swan Canning Riverpark’ issued by the Swan River Trust (2012). The FMP will guide foreshore treatment, landscaping, stormwater management and any measures that may be required to mitigate coastal erosion as determined in the assessment of coastal processes within the Matilda Bay DE. The FMP will aim to ensure the maintenance of the existing foreshore extent and use, consistent with the current objectives for the intent and use of the foreshore. Further details on the FMP are outlined in Section 6.1 below.
Heritage	Aboriginal Heritage: • The Swan River (ACH-00003536) Aboriginal Cultural Heritage site intersects the proposed project areas. Therefore, there is a risk of disturbing Aboriginal heritage sites or artefacts through construction activities.	Aboriginal Heritage Aboriginal Heritage surveys and consultation will be undertaken prior to commencement of construction activities. This will inform any approval requirements under the AH Act. An unexpected finds procedure will likely need to be developed prior to the commencement of site works.

Relevant Matter	Potential Impacts	Proposed Management or Mitigation Response
	• An Aboriginal Heritage Survey of the project areas is currently being undertaken which will determine if there is a risk of disturbance and if so what management and approvals may be required. European Heritage • No direct impacts from the proposed works on any European heritage sites are expected. • However, dilapidation surveys may be required to ensure construction activities do not in-directly result in impacts to nearby sites such as the 'Canning Bridge' and 'Raffles Hotel' which are identified as Local heritage sites of significance.	Aboriginal Artefacts Monitor (AAM) required to be present during terrestrial ground disturbance works for unexpected finds assessment. European Heritage Should dilapidation surveys indicate that there is a risk of impacts to nearby Local heritage sites then specific management measures will need to be put in place in consultation with the Local Authority and the Department of Planning lands and Heritage.
Terrestrial Noise and Vibration	• The environmental noise assessment (SLR, 2025b) concluded that that piling operations are predicted to have the highest potential impact and is projected to be audible at distances beyond 1 km. • Noise associated with the charging facility at Matilda Bay are predicted to be above existing background noise levels, prior to any noise mitigation treatments. Therefore, there is the potential for noise and vibration impacts to nearby sensitive receptors, such as residents and users of the foreshore area and associated amenities and nearby stakeholders (including the University of Western Australia and the Raffles Hotel). • The environmental noise assessment determined that if appropriate mitigation measures are implemented, the Project can be managed to comply with State regulations. A range of management measures for noise mitigation and/or source control measures were proposed.	Site specific CEMPs will be developed for approval by DBCA prior to commencement of site works and will include: • Controls of environmental noise practices set out in Section 4 of *AS 2436-2010, Guide to Noise and Vibration Control on Construction, Maintenance and Demolition Sites.* • Ensure the equipment used on the construction site is the quietest reasonably available. • Provide commitments around timing of construction and ensuring no construction works occur outside the hours of 7am to 7pm Monday to Saturday. Should construction works be required outside those times then noise limits will need to be applied and monitored during works. • Implement low or non-vibration construction activities where possible. • Monitor vibration levels and should levels exceed a pre-determined threshold then works will cease and alternative construction methodologies will be investigated. The Environmental Noise Assessment recommends the following measures which will be captured in the CEMP: • Allow for noise screening elements to be applied to manage noise from the electrical charging infrastructure to levels consistent with the surrounding environment. • Physical vibration monitoring for vibration intensive construction activity within 100 m of residential areas to provide certainty in received ground vibration levels. The project will also consider piling techniques to mitigate any potential vibration/dilapidation risk to adjacent built assets.
Amenity	• Minor and temporary impacts on visual receptors, including to residents and users of the foreshore area will occur during construction of the ferry terminals at Applecross and Matilda Bay. • The construction and operation of the Proposal may result in minor impacts on recreational activities at the Matilda Bay and Applecross foreshores. These impacts include temporary restrictions to access and use of grassed foreshore areas during construction, removal of existing boat moorings at Matilda Bay, and a reduction in marine space previously available for recreational use near the Matilda Bay jetty and terminal. • Change in the visual amenity of the river foreshores following development of the jetty terminals. • Construction lighting impacts on the amenity of the local area for local residents.	• Visual impact photomontages have been prepared to assess visual amenity impacts and to ensure the building heights and locations are in keeping with the existing structures. • A landscape plan has been developed to support the Development Application at Matilda Bay which outlines proposed landscape treatments and plantings to improve the amenity of the final development at Matilda Bay (including new roundabout, bus stands and parking bays). • Feedback from key stakeholder groups has been integrated into the design evolution of the Proposal, ensuring alignment with local community expectations and values. • Ongoing consultation with stakeholder groups and the public to minimise impacts on recreational use of the water and foreshore areas. • Site specific CEMPs will be developed for approval by DBCA prior to commencement of site works and will include measures to minimise construction lighting and to ensure measures are implemented to control dust and sediment runoff and to provide fencing of the construction zones with clear signage for users of the foreshore areas.

6.0 Development Approval Conditions

Development approval will be subject to relevant conditions that will need to be addressed and signed off by the relevant authority prior to development commencing. In consideration of the relevant policy provisions, as well as likely impacts and required management responses outlined in Table 2 and Table 3 the following draft conditions are anticipated:

1. *All works are to be undertaken in accordance with a Construction Environmental Management Plan as approved by the Department of Biodiversity, Conservation and Attractions.*
2. *All works are to be undertaken in accordance with a Foreshore Management Plan as approved by the Western Australian Planning Commission and the Department of Biodiversity, Conservation and Attractions.*

The approach to these management plans is detailed further below:

6.1 Foreshore Management Plan

The Foreshore Management Plan (FMP) will be developed for the Matilda Bay DE area only to meet the requirements of SPP 2.6 and will be largely informed by the findings of the coastal processes assessment that is currently being undertaken. This assessment will determine the necessary protection measures to ensure that the proposed development will not adversely impact the current use or extent of the foreshore.

The FMP will be guided by the ‘Best management practices for foreshore stabilisation’ prepared by the Swan River Trust (2009). The FMP will also be developed in consideration of the ‘Guidelines for developing foreshore management plans in the Swan Canning Riverpark’ issued by the Swan River Trust (2012).

The FMP will also guide foreshore treatment works associated with the development, and will include details on:

- Any measures required to mitigate coastal erosion within the DE as a result of the development as determined through the coastal processes assessment.
- Implementation of the FMP within the DE in accordance with SPP 2.6, including funding, maintenance, monitoring and management of foreshore works for a period not less than five years commencing from completion of all foreshore works.

6.2 Construction Environmental Management Plan

As outlined in Table 3 above, to guide the implementation of the above management measures during construction, a CEMP for each site will be prepared for approval by DBCA prior to the commencement of any construction activities.

DBCA has developed a CEMP Guidance Note 1 for the Swan Canning River Park which outlines a recommended document structure to assist with the preparation of a CEMP for works within the Swan Canning DCA.

In consideration of this guideline and the potential impacts outlined above, the CEMP will include the following specific management requirements (at a minimum):

- Sedimentation and turbidity control methods including the use and installation of silt curtains, ensuring that appropriate measures are taken to contain turbidity to the immediate works area and prevent, where practicable, sediment plumes from moving outside the immediate area of the works.
- Details of proposed pile driving methodology and machinery, vibration pile driver with a soft start-up, rather than a drop hammer, be used to install the piles to minimise underwater noise
- Details of measures to protect the river from contamination including:
  - treatment any plastic or composite materials to ensure microplastics will not be emitted.

  - cutting or drilling of plastic or composite material to be completed off-site where possible
  - dust/shavings/off-cuts should be captured at the point of modification and responsibly disposed of offsite
  - any painting or application of surface treatments shall be carried out either by hand brush or roller method
  - refuelling protocols - refuelling should take place outside of the Swan Canning Development Control Area if possible, or within an appropriate impervious bund
  - identification of contaminated riverbed sediment. *Note baseline sediment quality sampling is currently being undertaken and will inform any contingency actions that may be required during construction.*
- A detailed site map showing the location of any:
  - signage, including the contact details of essential site personnel
  - perimeter fencing and hoarding
  - the laydown area and vehicle entry/exit points
  - protected vegetation
  - silt curtains
  - on-site storage and bunding of materials and equipment
  - signage and safety measures to ensure public safety
  - traffic access and parkin
- Incident response measures and procedures including:
  - mechanisms for complaints and incidents
  - provision of a spill kit at all times on the project site suitable for containing and clean up any spills
  - Measures to document and respond to incidents of damage, sediment plumes, pollution or spills within the DCA
  - proposed contingency actions if environmental controls are inadequate
  - procedures to ensure that in the event of an incident, DBCA is notified within 48 hours and all damage is rectified.
- Measures to ensure that no soil, runoff, construction material or any other deleterious matter is allowed to enter the river
- Measures to minimise risk to aquatic fauna. In particular:
  - to minimise underwater noise, a vibration pile driver with a soft start-up, rather than a drop hammer, be used to install the piles. This will reduce noise impacts, including that to dolphins.
  - to ensure the safety of dolphins during construction, no pile driving shall start if dolphins are within 200 metres of the site and piling activity shall cease if a dolphin comes within 50 metres of the site and shall not recommence until any dolphin has moved away more than 200 metres or has not been observed for 20 minutes.
  - contractor will be employed to observe and monitor marine fauna during piling works.

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Appendix A

Biological Survey (GHD, 2025)

Ferry Extension Project: Perth to Applecross

Biological Survey

Public Transport Authority

26 September 2025

→ The Power of Commitment

Project name	Swan River Ferry Expansion
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S3	0	P Patterson	T Sleigh	On file	M Brook		19/05/25
S3	1	M Ryan	T Sleigh	On file	M Brook		26/09/25
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→ **The Power of Commitment**

Executive summary

The Public Transport Authority (PTA) is planning to expand the ferry public transport system within the Swan River. The project is expected to include the following elements:

- Expansion of the ferry fleet with new ferries, potentially using water jet propulsion and electric power.
- Ferry terminals, including:
  - extension of the existing Elizabeth Quay jetty.
  - new jetty at Matilda Bay with onshore electric charging infrastructure and public amenities.
  - new jetty at Applecross with associated pedestrian access.
- Operation of new ferry services between Elizabeth Quay, Matilda Bay and Applecross, GHD Pty Ltd was engaged by Public Transport Authority (PTA) to undertake the assessment of flora, vegetation and fauna values and diversity and abundance within the Survey Area that encompasses the project.

The biological survey involved a desktop assessment, basic reconnaissance flora and vegetation survey and basic reconnaissance-level fauna survey assessment. The flora and vegetation surveys and fauna surveys were conducted concurrently on the 7 March 2025 and 27 March 2025. The purpose of the surveys was to identify the flora, vegetation, fauna and values present within the area to inform the design, environmental assessment and approvals process.

In addition to the biological survey, recent mapping by the Department of Biodiversity, Conservation and Attractions (DBCA) identified approximately 590 hectares (ha) of seagrass communities within the Swan-Canning Estuary, classified into sparse, medium, and dense coverage zones (DBCA, 2025). While the current survey sites do not directly intersect mapped high-density seagrass beds, this updated spatial data provides important context for understanding benthic habitat values in adjacent estuarine areas and should be considered in the broader environmental approvals process.

Vegetation and flora

The background desktop assessment identified three main vegetation unit types with no wetlands or major conservation reserves or ecological communities directly intersecting or occurring within the four survey sites themselves, and a total of 167 significant listed threatened and priority flora species located within a 10 km radius Study Area of all four Survey Sites. However, no such species were found or recorded within the survey sites themselves and were confined to neighbouring ecological communities and established nature reserves and parks.

A small number of basic vegetation types were recorded within the three various Survey Sites of the Survey Area, varying from one to three vegetation types across the three sites, with the larger range of vegetation types and vegetation cover being observed at Matilda Bay. Across the Survey Area, the dominant vegetation types consisted of cleared parkland, scattered native Eucalypt, Melaleuca, and Peppermint, Shoreline and Estuarine Riparian, rehabilitation and re-plantings. The remaining areas consisted of sections completely devoid of vegetation. As a result, all three sites across the Survey Area were considered to be Cleared.

A total of 19 vascular flora species, were recorded across all three sites within the Survey Area. This total included 10 native and nine introduced species. As the Survey Area has previously been significantly cleared and altered, the flora of the area consisted of both planted exotic and native species, with scattered, significant individual trees from various *Agonis* (Peppermint), *Melaleuca*, Eucalypt and Marri species present in small numbers at the Matilda Bay sites. No observed flora species are listed as declared pest plants in WA under the BAM Act, or Weeds of National Significance (WoNS) (Australian Weeds 2012).

No EPBC or state listed TECs, or DBCA listed PECs were recorded within any of the three sites within the Survey Area, reinforcing the highly degraded, low ecological value of the Survey Area in the current state compared to historically occurring ecological diversity, value, and in comparison to the established higher value systems present in communities within the 10km radius of the desktop Study Area such as Banksia Woodlands of the Swan Coastal Plain, and in neighbouring nature reserves and conservation-listed parks.

Fauna

Database desktop searches across various state and federal records have identified a significant number (94 taxa of species and sub-species) of Threatened and Priority fauna species that had either been previously recorded or determined to be likely to occur within the Study Area, which includes a 10 km radius from all three sites across the Survey Area. However, such previous records were not located within the Survey Area in great frequency, and were concentrated within neighbouring areas of higher habitat value or established conservation reserves and parks.

A small number of basic fauna habitat types were recorded across the Survey Area, consisting of four basic habitat types to varying sizes and coverage across the three sites of the Survey Area. These fauna types were classified as Scattered Trees (Native and Exotic), Parkland over revegetation and re-planted flora, Riparian Rivers and shoreline wetlands and Completely Cleared. These fauna habitats are likely to support a comparatively small range of regionally common terrestrial fauna species, primarily birds, within the habitats available. Field surveys across all three Survey Sites of the Survey Area recorded small numbers of predominantly locally common bird species, ranging from as few as four species at Elizabeth Quay to 13 species at Matilda Bay. Furthermore, no conservation significant fauna species, listed under either *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) level or the WA *Biodiversity Conservation Act 2016* (BC Act), were recorded. A total of three potential black cockatoo breeding trees (with a diameter at breast height (DBH) of 500 mm) were identified at the Matilda Bay site. It is, however, unlikely that the current Survey Area contain enough habitat of sufficient quality to allow for persistent use in breeding, foraging or roosting activity when compared to the neighbouring recorded areas of higher quality and value for black cockatoos.

From an assessment of potentially significant trees that were deemed to be of notable importance in terms of size, significance to native fauna use and overall importance to the Survey Site, there were no significant trees observed at either the Applecross Survey Site or the Elizabeth Quay Survey Site. When including the suitable DBH trees in the assessment, a total of seven potentially significant tree groupings were identified and recorded across the remaining Survey Site, with all seven at Matilda Bay. The majority of these trees were isolated individuals with a small number of small groupings of three to four. Most of these trees were also native species of older ages and size and condition compared to other surrounding flora species observed, with each of them offering potential foraging, temporary resting and nesting habitat for locally common bird species as well as the identified black cockatoo trees offering the potential for lower value foraging and feeding and temporary resting habitat. The details of each group of potentially significant trees are provided in table format in Appendix D. It is noted that while other trees of smaller size and condition were observed at the Matilda Bay Survey Site, these were not deemed to have a significant size or condition to be assessed as of significance to the Survey Site as a source of fauna utilisation when compared to those identified and highlighted trees. While the majority of the previously identified significant species from desktop assessment were not assessed as likely to occur or known to occur, a small number of similar species across the Survey Area were deemed likely to occur or possibly occurring, ranging from eight species at the Elizabeth Quay and Applecross sites, to nine species at the Matilda Bay site. There was a higher number of such species at Matilda Bay assessed as being likely to occur as opposed to potentially occurring. This is due to the higher presence of re-planted and rehabilitated vegetation cover and the presence of a small number of clusters of scattered existing trees, of which a smaller number were assessed as being of lower value but potential feeding and foraging trees for the three local threatened Black Cockatoo species. These sites also contained greater potential for temporary resting or temporary foraging for species such as Osprey and Quenda.

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1. Introduction

1.1 Project background

The Public Transport Authority (PTA) is planning to expand the ferry public transport system within the Swan River. The Project is expected to include the following elements:

- Expansion of the ferry fleet with new ferries, potentially using water jet propulsion and electric power
- Ferry terminals, including:
  - extension of the existing Elizabeth Quay jetty
  - a new jetty at Matilda Bay with onshore electric charging infrastructure and public amenities
  - a new jetty at Applecross with associated pedestrian access
  - a new jetty at Canning Bridge, with pedestrian access provided through the Canning Bridge Bus Interchange project.
- Operation of new ferry services between Elizabeth Quay, Matilda Bay and Applecross.

1.2 Purpose of this report

PTA commissioned GHD to conduct a biological assessment to support the project approvals process. Specifically, the scope was to undertake terrestrial flora, vegetation, and fauna desktop assessment field surveys for the three proposed sites associated with the project.

1.3 Location

1.3.1 Study Area

The total Study Area for the desktop assessment and related database searches comprised of a 10 km buffer radius from all three proposed survey sites, which was compiled into a single Study Area for assessment. Figure 1, Appendix A maps the Study Area.

1.3.2 Survey Area

The Survey Area consisted of three separate sites across the Swan River Region. These locations were based at:

- Elizabeth Quay
- Applecross
- Matilda Bay

A figure outlining specifics of each survey site are provided in Appendix A, Figure 1.

1.4 Scope of works

The scope of works addressed the survey area and includes:

- A desktop review of publicly available information to determine the environmental values of the Survey Area
- A reconnaissance flora and vegetation field survey to verify/ground truth the desktop assessment findings through techniques in accordance with Environmental Protection Authority (EPA) flora and vegetation survey guidelines (EPA, 2016)
- A basic fauna survey including fauna habitat mapping based on vegetation units in accordance with EPA (2020)
- Preparation of a biological assessment report (this document) on the findings of the desktop assessment and field survey.

1.5 Relevant legislation, conservation codes and background information

In Western Australia (WA) significant communities, and flora and fauna are protected under both Federal and State Government legislation, including the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), *Environmental Protection Act 1986* (EP Act), *Biodiversity Conservation Act 2016* (BC Act) and the *Biosecurity and Agriculture Management Act 2007* (BAM Act).

In addition, regulatory bodies also provide a range of guidance and information on expected standards and protocols for environmental surveys. An overview of key legislation and guidelines, conservation codes and background information relevant to this Project are provided in Appendix B.

1.6 Report limitations and assumptions

This report has been prepared by GHD for and may only be used and relied on by PTA for the purpose agreed between GHD and PTA as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

GHD has prepared this report on the basis of information provided by PTA and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

This report has assessed desktop environmental aspects and biological factors in the field for the survey sites. Should these areas change or be refined, further assessment may be required.

2. Methodology

2.1 Desktop Assessment

Prior to the commencement of the field survey, a desktop assessment was undertaken to identify relevant environmental information pertaining to the study area and to assist in survey design, with a 10 km radius buffer search around all three identified sites. Given the close proximity of the three sites together across the Perth Metropolitan area, one whole desktop analysis encompassing all three sites was undertaken. The desktop assessment involved a review of the following:

- The Department of Climate Change, Energy, Environment and Water (DCCEEW) Protected Matters Search Tool (PMST) to identify communities and species listed under the EPBC Act potentially occurring within the study area (Department of Climate Change, Energy, the Environment and Water 2022a) (Appendix C)
- The Department of Biodiversity, Conservation and Attractions (DBCA) *NatureMap* database for flora and fauna species previously recorded within the study area. (Note that the minimum buffer distance of the *NatureMap/Dandjoo* Search is 10 km, so this encompasses species beyond the 5 km study area) (DBCA 2025a), Appendix C)
- The BirdLife Australia's Atlas, Birdata datasets and Great Cocky Count dataset to identify Black Cockatoo roosts (Birdlife Australia 2016).
- The DBCA Threatened Ecological Community (TEC) and Priority Ecological Community (PEC) database to determine the potential for TECs or PECs to be present within the study area (Department of Biodiversity, Conservation and Attractions 2022b).
- The DBCA Threatened and Priority Flora database (TPFL) and the WA Herbarium database (WAHERB) for Threatened flora species listed under the EPBC Act and/or the BC Act and listed as Priority by DBCA, previously recorded within the study area (2025c).
- Broad vegetation mapping of the Survey Area (Beard 1979 and Heddle *et al* 1980), aerial photography, geology/soils and hydrology information to provide background information on the variability of the environment, likely vegetation units and fauna habitats and to identify areas with potential to contain TECs, PECs, and Threatened and Priority listed flora and fauna species.
- Atlas of Living Australia (ALA) Spatial Portal (Atlas of Living Australia 2025), due to the limitations of the *NatureMap* Search, the flora diversity section of the desktop assessment is informed by the ALA spatial portal database search.
- Data WA main database website (www.data.wa.gov.au) with access to specific state-based information relating to Hydrology, Wetlands, Landforms and Soils, Environmentally Sensitive Areas (ESA) and conservation reserves.

2.2 Field Survey

2.2.1 Vegetation and flora

The field surveys were undertaken to verify the results of the desktop assessment, identify and describe the dominant vegetation types, assess vegetation condition, and identify and record vascular flora taxa present at the time of survey. Searches for significant ecological communities and flora taxa were also undertaken during the field survey. A map depicting GPS track logs to attest to time and effort expended is included in Figure 2, Appendix A. GHD Zoologist Phil Patterson and Graduate Ecologist Rebecca Jarrold conducted the flora and vegetation survey over one and half days on 7th March 2025 and 27th March 2025.

The survey methodology employed by GHD was undertaken with reference to the EPA *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority 2016).

2.2.1.1 Data collection

Given the highly disturbed nature of the site and lack of native vegetation, quadrat sampling was not deemed necessary, and effort was placed in traversing the Survey Area to identify native species, overall dominant vegetation types and flora species, and potentially significant weeds (as shown in Table 1. This survey effort is considered suitable to meet the requirement of a reconnaissance survey.

Table 1 Data collected during the field survey

Aspect	Measurement
Physical features	Landform, slope, aspect, soil attributes, ground surface cover, leaf and wood litter.
Location	Coordinates recorded in GDA94 datum using a hand-held GPS tool.
Vegetation condition	Vegetation condition was assessed using the condition rating scale adapted by EPA (2016) for the South West Botanical Province.
Disturbance	Level and nature of disturbances (e.g. weed presence, fire and time since last fire, impacts from grazing, anthropogenic activities).
Flora	Broad flora species overview and description of dominant species present with positively identified significant flora species recorded and mapped where or if evident.

2.2.1.2 Vegetation types and mapping

Vegetation types were identified, and boundaries delineated using a combination of aerial photography, topographical features, and field data and observations.

Vegetation types were described based on structure, dominant taxa and cover characteristics as defined by relevé data and field observations. Vegetation type descriptions followed Native Vegetation Information System (NVIS) and consistent with NVIS level V (Association). At Level V up to three taxa per stratum are used to describe the association (NVIS Technical Working Group 2017).

2.2.1.3 Vegetation condition

Vegetation condition was assessed and mapped in accordance with the vegetation condition rating scale for the South West and Interzone Botanical Provinces (devised by Keighery (1994) and adapted by EPA (2016). The scale recognises the intactness of vegetation and consists of six rating levels. The vegetation condition rating scale is outlined in Appendix B.

2.2.1.4 Targeted surveys for significant flora

The results of the desktop assessment were reviewed, and a target list of significant flora taxa compiled. Ecological information (habitat, associated flora taxa and phenology) was sourced from *FloraBase* (Western Australian Herbarium 2022) and other relevant publications where available.

Habitat for significant flora taxa in the Survey Area was traversed on foot. The survey methods were undertaken with reference to EPA (2016). Figure 2 (Appendix A) presents survey effort through GPS track logs.

Where significant flora taxa were identified the locations and number of plants present were recorded using a GPS unit.

2.2.1.5 Taxonomy and Nomenclature

A flora inventory was compiled from taxa listed from opportunistic floristic records throughout the Survey Areas. Species that were well known to the survey ecologists were identified in the field. Species were identified by the use of taxonomic literature, electronic keys and online electronic databases.

The conservation status of all recorded flora was compared against the current lists available on *FloraBase* (Western Australian Herbarium 2022) and the EPBC Act Threatened species database provided by DCCEEW (2022b)

Nomenclature used in this report follows that used by the WA Herbarium as reported on *FloraBase* (Western Australian Herbarium 2022).

2.2.2 Vertebrate fauna survey

GHD Zoologist Phil Patterson and Graduate Ecologist Rebecca Jarrold conducted the fauna survey over one and half days day on 7 March 2025 and 27 March 2025.

The following guidance were referenced to conduct the survey:

- Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020)
- Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo (Department of Agriculture, Water and Environment (DAWE) 2022).

In the context of a Basic fauna survey, the guidance statement advises field observers to describe the fauna habitats of the Survey Area, which give a comprehensive list of fauna that can reasonably be expected to occur. Therefore, the aim of the fauna component of the survey included descriptions of fauna habitats in the Survey Area and a compilation of fauna species recorded opportunistically as the Survey Area was traversed. Significant fauna considered likely to occur were targeted during the traverses undertaken, through targeting and recording any secondary signs of fauna (mounds, tracks, feeding evidence) or visible/audible encounters of the target species in suitable habitat. Black Cockatoos known to occur locally, and their habitat were specifically targeted during the survey as detailed below.

2.2.2.1 Fauna habitat assessment

A fauna habitat assessment was undertaken to document the types, value, and extent of habitats within the Survey Area. Habitat delineation was aligned closely with the vegetation community types identified during the flora and vegetation survey. Specifically, the assessment included:

- Habitat structure (vegetation community type, structural layers such as ground cover and mid storey)
- Presence/absence of refuge including density of vegetation strata and ground debris, hollow-bearing trees and stags, and the type and extent of each refuge
- Presence/absence of waterways (natural or artificial)
- Location of the habitat within the Survey Area and local context with surrounding landscape
- Habitat connectivity and identification of wildlife corridors within and immediately adjacent to the Survey Area
- Current land use and disturbance history
- Evaluation of key habitat features, and types identified during the desktop assessment relevant to fauna of conservation significance
- Evaluation of the likelihood of occurrence of significant fauna, based on presence of suitable habitat
- Mapping of the broad habitat types identified
- A representative photograph of each broad habitat type.

2.2.2.2 Opportunistic fauna searches

Opportunistic fauna searches were undertaken across the Survey Area, involving:

- Species inventory based on observed fauna and recorded tracks, scats, and other evidence.
- Searching through microhabitats including turning over logs or rocks, turning over leaf litter and examining tree hollows and logs
- Visual and aural surveys, which accounted for many bird species potentially utilising the Survey Area
- Recording GPS locations of any significant fauna species observed.

2.2.2.3 Taxonomy and Nomenclature

Identification of fauna species was made in the field using available field guides and electronic guides. In accordance with the EPA technical guidance, nomenclature for herpetofauna and mammals follows that of the Western Australian Museum Checklist of the Vertebrates of Western Australia (Western Australia Museum 2021) and birds follows the Australian Faunal Directory (Department of Environment and Energy 2022).

2.3 Survey limitations

Following completion of the desktop assessment and field surveys, a review of any limitations that may have affected a complete assessment of the data collected was conducted.

The EPBC Act PMST is based on bioclimatic modelling for the potential presence of species. As such, this does not represent actual records of the species within the area. The records from the Department of Biodiversity, Conservation and attractions (DBCA) searches of Threatened flora and fauna provide more accurate information for the general area based on prior records. However, some records of collections, sightings or trappings cannot be dated and often misrepresent the current range of Threatened species. Notwithstanding, database records pertaining to significant taxa and plant communities are interrogated where possible anomalies or outlying records are found to ensure thoroughness and accuracy.

The limitations listed in Table 2 are based on those suggested as considerations in Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (Environmental Protection Authority 2016) and Technical Guidance – Terrestrial Fauna Surveys for Environmental Impact Assessment (Environmental Protection Authority 2020).

Table 2 Field survey limitations

Aspect	Constraint	Comment
Sources of information and availability of contextual information.	Nil	The vegetation types of the Swan Coastal Plain (SCP) were mapped by Beard at a scale of 1:250,000 in the 1960s and 1970s (later digitised) with the entire area later mapped at a scale of 1:1,000,000 (Beard 1979). Vegetation complexes of the SCP (south of Lancelin) have been mapped at a scale of 1:250,000 and compiled into a dataset (Department of Biodiversity, Conservation and Attractions 2018a). The majority of the SCP was described by Heddle, Loneragan and Havel (1980) with the far southern section completed by Webb et al (2016). Information at a local scale is available for Bush Forever Sites (Government of Western Australia 2000). All fauna databases such as DBCA, Dandjoo and Atlas of Living Australia have extensive current and historical recordings of both common and significant fauna and outlining of core and suitable habitat and were assessed in combination with the current field survey assessments.
Scope (what life forms were sampled etc.)	Minor	Vascular terrestrial flora and terrestrial vertebrate fauna were assessed during the survey. Non-vascular flora, aquatic flora, invertebrate and aquatic fauna were not surveyed. Furthermore, aquatic vertebrate fauna species were only observed on an opportunistic basis due to the small proportion of various survey sites that featured marine habitat.
Proportion of flora collected and identified (based on sampling, timing and intensity) Proportion of fauna identified, recorded and/or collected	Minor	The single season reconnaissance level flora and vegetation survey was undertaken in Autumn (March 2025), which is outside of the typically optimal timing for flora surveys in the Southwest Botanical Province (EPA 2016). However, due to the highly degraded and historically cleared nature of all four survey sites, this was not considered to significantly impact the diversity and abundance of species or their capacity to be identified. Given the small survey site sizes, low remnant vegetation and low remaining species diversity due to extensive clearing and land conversion, the reconnaissance level assessment required for the current project and brief overview of vegetation and flora species type was considered sufficient. The Basic fauna survey and habitat assessment was undertaken in March 2025. The fauna assessment was aimed at identifying broad habitat types and significant terrestrial vertebrate fauna utilising the Survey Area. The fauna assessment sampled those species that can be easily seen, heard or have distinctive signs, such as tracks, scats, diggings, etc. Many cryptic species would not have been identified during a Basic survey and seasonal variation within species often requires Targeted surveys at a particular time of the year. Of the fauna species recorded during the survey, all were identified to species level. The survey timing was considered appropriate for the purpose of the assessment.
Flora determination	Minor	Flora determination was undertaken by GHD ecologists and zoologists in the field and through further consultation with senior botanists and ecologists once back in the main GHD office from photos and GPS recordings. None of the species observed were potential significant flora. The taxonomy and conservation status of the WA flora is dynamic. This report was prepared with reliance on taxonomy and conservation status current at the time report development, but it should be noted

Aspect	Constraint	Comment
		this may change in response to ongoing research and review of International Union for Conservation Nature criteria.
Completeness and further work which might be needed (e.g. was the relevant area fully surveyed)	Nil	The Survey Area was considered adequately surveyed to compile a representative list of species, as well as to describe and map vegetation at a level appropriate for impact assessment and approval determination.
Mapping reliability	Minor	The survey was conducted using high-resolution aerial imagery obtained from Landgate, topographical features, previous vegetation mapping (Heddle *et al.* 1980 and Webb *et al.* 2016) and field data. Data was recorded in the field using hand-held GPS tools (e.g. Samsung tablet, Garmin GPS and Trimble). Certain atmospheric factors and other sources of error can affect the accuracy of GPS receivers, including tree canopies. The Garmin GPS units used for this survey are accurate to within ±5 metres on average, whereas the Trimble unit is capable of a <2 m accuracy. Therefore, the data points consisting of coordinates recorded from the GPS may contain minor inaccuracies.
Timing/weather/ season/cycle	Minor	The field survey was conducted during the early Autumn period (March, 2025 (Bureau of Meteorology 2025). In the three months prior to the survey (November 2024- January 2025) 19.6 mm of rainfall was recorded. This total is below the long-term average for the same period (November 2024 -January 2025; 50mm) (Bureau of Meteorology 2025), and represents the drier and hotter season for numerous species of flora and fauna. This may slightly reduce recordings of certain terrestrial vertebrate fauna species. However, due to the highly degraded and altered aspects of all three Survey Sites, it is unlikely that this would significantly impact the accuracy of findings in terms of representing flora and fauna presence at the Survey Sites.
Disturbances (e.g. fire, flood, accidental human intervention)	Minor	The Survey Sites have previously been completely cleared due to historic land use, and conversion to recreational parkland and infrastructure.
Intensity (in retrospect, was the intensity adequate)	Nil	The vascular flora of the Survey Area was sampled in accordance with EPA (2016) and terrestrial fauna sampled in accordance with EPA (2020). The survey intensity was of suitable intensity for the size, location and level of existing disturbances and development across the survey sites. A minimum of three flora sample sites were located within each identified vegetation type, where possible. In some instances, less than three sites were described per vegetation type, this was due to the limited area and geographic range of the vegetation type and/or the degraded condition of the vegetation. As the area has been completely cleared and replanted with a mixture of local and non-local native species, relevés were used to sample vegetation, and quadrats were subsequently not required as The Survey Area was sufficiently covered by the GHD ecologist and zoologist during the survey.
Resources	Nil	Adequate resources were employed during the field survey. Two days were spent undertaking the survey using a combination of one graduate ecologists and one zoologist. The relatively small sizes of each survey site and in proximity to one-another allowed for each site to be accessed and surveyed within a single day of fieldwork.
Access restrictions	Nil	No access restrictions were encountered for the survey sites in the field.
Experience levels	Minor	The zoologist and graduate ecologist who executed the survey are experienced practitioners with over 4 years of environmental consultancy experience, including assessment and research surrounding the Swan Coastal Plain.

3. Desktop assessment

3.1 Climate

The Study Area experiences a temperate climate with distinctly dry, hot summers and cool, wet winters.

The Bureau of Meteorology Perth Metro station (site number 009225) is the nearest weather station to the Study Area with continuous long-term data. Climatic data from this site indicates the mean maximum temperature of the area ranges from 19.0°C in July to 29.7 °C in December and the mean minimum temperature ranges from 8.7 °C in July to 19.4 °C in February (Bureau of Meteorology 2025). The mean annual rainfall is 726.9 mm (Bureau of Meteorology 2025). In the three months prior to the survey (November 2024- January 2025) 19.6 mm of rainfall was recorded. This total is below the long-term average for the same period (November 2024 -January 2025; 50mm) (Bureau of Meteorology 2025).

3.2 Landforms and soil

The Survey Area occurs on the Swan Coastal Plain and within two soil landscape systems:

- Spearwood System (211Sp): Comprises predominantly of sand dunes and plains with yellow deep sands, pale deep sands and yellow/brown shallow sands.
- Vasse System (211Va): Poorly drained estuarine flats, of the Swan Coastal Plain. Tidal flat soil, saline wet soil and pale deep sand. Samphire, sedges and paperbark woodland.

The DPIRD soil mapping indicates that there are two soil landscapes that intersect the Survey Area (Table 3) (Department of Primary Industries and Regional Development 2021).

Table 3 Landforms within the Survey Area

Unit	Name	Description	Area (ha)
211Sp S14	EnvGeol S14 phase	SAND - pale grey to white, medium-grained sub-angular, quartz and feldspar, well sorted, abundant whole and broken bivalves and gastropod shells, of alluvial origin	3.32
211Va C1	EnvGeol C1 phase	CLAY - mid to dark grey, soft, saturated, prominent 0.2 m thick oyster shell bed near surface of alluvial origin. Variable organic content	9.53

3.3 Hydrology

The DWER geographic data layers (Department of Water and Environmental Regulation 2023) identified the following hydrology and hydrogeology aspects proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) within the Survey Area (Table 4).

Table 4 Department of Water and Environmental Regulation geographic data atlas queries for the Survey Area

Aspect	Details	Result
Groundwater area	Groundwater areas proclaimed under the RIWI Act.	The Survey Area is located within the Perth Groundwater Area.
Surface water areas	Surface water areas proclaimed under the RIWI Act.	None Present
Irrigation district	Irrigation Districts proclaimed under the RIWI Act.	None Present
Rivers	Rivers proclaimed under the RIWI Act.	The Survey Area intersects with the Swan River.
Public Drinking Water Source Areas (PDWSA)	PDWSAs is a collective term used for the description of Water Reserves, Catchment Areas and Underground Pollution Control Areas declared (gazetted) under the provisions of the *Metropolitan Water Supply, Sewage and Drainage Act 1909*.	None Present. The closest PDWSA is the Perth Coastal and Gwelup Underground Water Pollution Control Area located 12km to the North of the Survey Area.

Aspect	Details	Result
Waterway Management Areas	Areas proclaimed under the *Waterway Conservation Act 1976*.	None Present

3.3.1 Wetlands

The desktop search across the PMST MNES database and DBCA listed RAMSAR and Nationally Important Wetlands recorded one RAMSAR listed Wetland, this being the Forrestdale and Thompsons Lakes, and four (4) Nationally Important Wetlands, with these being Palmer Barracks, Herdsman Lake, Booragoon Swamp, and the Swan-Canning Estuary. Only one of the identified wetlands was located within the 10 km radius of the current Survey Area, that being the Swan-Canning Estuary, with all others more than 10 km away.

Based on the Geomorphic Wetlands of the Swan Coastal Plain mapping (Department of Biodiversity, Conservation and Attractions 2021a), one geomorphic wetland intersects the Survey Area. Geomorphic wetlands are detailed in Table 5 and mapped on Figure 3, Appendix A.

Table 5 Geomorphic wetlands within 250 m of the Survey Area

UFI	Wetland name	Wetland management	Wetland Type	Distance to Survey Area
13316	Swan River Estuary	Conservation	Estuary-Waterbody	Intersects the open water portion of all sites excluding Elizabeth Quay

In addition to geomorphic wetland mapping, recent seagrass distribution surveys conducted by the Department of Biodiversity, Conservation and Attractions (DBCA, 2025d) identified approximately 590 ha of seagrass communities within the Swan-Canning Estuary. These communities, dominated by *Halophila ovalis*, were classified into sparse, medium, and dense coverage zones. These seagrass communities provide important ecological functions, such as sediment stabilisation, nutrient cycling, and habitat for estuarine fauna, which supports the identification of benthic habitat values within the estuarine wetland system. As such, these seagrass communities should be considered in conjunction with geomorphic wetland data when assessing potential environmental impacts.

3.4 Land use

3.4.1 Region Schemes

The Survey Area intersected multiple Local Government Authorities (LGAs) including the City of Perth, City of South Perth and the City of Melville. The Metropolitan Region Scheme (MRS) indicated that the land parcels within the Survey Area are predominately zoned as “Waterways” and “Parks and Recreation” (Department of Planning, Lands and Heritage 2025). The general land uses surrounding the Study Area are mapped on Figure 4, Appendix A and land uses within the Survey Area sites are summarised in Table 6.

Table 6 Surrounding land use and zoning

Survey Area	LGA	Details
Applecross site	City of Melville	The site intersects the Canning River, attributing to the “Waterways“ MRS zoning. The southern end of the site is attributed to “Primary regional roads” due to intersecting the Canning Highway while the remainer of the site is “Parks and Recreation”. The area south of the site comprises urban land use.
Elizabeth Quay site	City of Perth	Elizabeth Quay is located in the Perth CBD and zoned as “Central city area”. It is adjacent to the Swan River, attributing to the “Waterways” land use.
Matilda Bay site	City of Perth	The Matilda Bay site intersects the Swan River, attributing to the “Waterways“ MRS zoning. A large portion of the site is located in the Matilda Bay Reserve, which is zoned as “Parks and Recreation”. The University of

Survey Area	LGA	Details
		Western Australia is located to the west of the site which is zoned as “Public purposes – university”.

3.4.2 Conservation Reserves

The Survey Area is partially located in DBCA managed areas, the Swan River and Canning River (R 48325 and R 48327) vested with the Swan River Trust for the purpose of Landscape Protection. As outlined below in Section 3.4.2.1, the Swan and Canning River Development Control Area extends along all survey sites excluding Elizabeth Quay. The Survey Area also intersects the Matilda Bay Reserve (R 17375), a Class A Conservation Park and DBCA managed reserve vested with the Conservation Commission Of WA. DBCA legislated lands are listed in Table 7 and mapped on Figure 5, Appendix A (Department of Biodiversity Conservation and Attractions 2022c).

Table 7 DBCA legislated lands or water within the Survey Area

Reserve name	Identifier	Class	Category	Act
-	R 48325	-	Crown Land	*Swan and Canning Rivers Management Act 2006*
-	R 48327	-	Crown Land	*Swan and Canning Rivers Management Act 2006*
Matilda Bay Reserve	R 17375	A	Crown Land	*Conservation and Land Management Act 1984* - Section 5(1)(g)

3.4.2.1 Development Control Area

The Swan and Canning Rivers, and adjoining parks and recreation reserves are contained within the Swan and Canning River Development Control Area (DCA). The Swan and Canning River DCA extends along all survey sites excluding Elizabeth Quay (Department of Biodiversity Conservation and Attractions 2019a).

The responsibility for the management of development within the Swan and Canning DCA sits with the Rivers and Estuaries Branch of the DBCA. Policies have been developed to ensure land use planning and development in the DCA protects and enhances the ecological health, community benefit, amenity and heritage value of the Swan and Canning River system. The process for development approvals in and around the rivers depends on the location of the proposed development with respect to the DCA.

Land use planning and development in the DCA is subject to the approval processes of Part 5 of the *Swan and Canning Rivers Management Act 2006* (SCRM Act) and the Swan and Canning Rivers Management Regulations 2007 (SCRM Regulations).

Section 3 of the SCRM Act defines development as:

a. the erection, construction, demolition, alteration or carrying out of any building, excavation, or other works in, on, over or under land or waters
b. a material change in use of land or waters
c. any other act or activity in relation to land or waters declared by the regulations.

Certain classes of works, acts and activities are excluded from the definition of development under the SCRM Regulations. For example, this may include investigative activities and temporary works.

Part 5 of the SCRM Act applies to development wholly within the DCA. DBCA prepare a report, the Swan River Trust endorse and make a recommendation, and the Minister for Environment is the decision maker. Where the development is partly in the DCA or abuts the DCA or may affect the DCA, it is dealt with under the planning approval process via clause 30A of the MRS. In this case Swan River Trust provides advice, often from the DBCA Rivers and Estuaries Branch to the planning authority (Western Australian Planning Commission (WAPC) or LGA).

3.4.3 Bush Forever Sites

No bush forever sites intersect the Survey Area. The nearest bush forever site is site number 402, located approximately 100m south of the Matilda Bay site. Bush forever is mapped on Figure 6, Appendix A.

3.4.4 Environmentally Sensitive Areas

The Survey Area intersects 10 Environmentally Sensitive Areas (ESAs) (Department of Water and Environmental Regulation 2021). These ESAs are associated with Important Wetlands in Australia (Swan-Canning Estuary), Swan Coastal Plain wetlands and Register of the National Estate and are mapped on Figure 6, Appendix A.

3.5 Regional biogeography

The Survey Area is situated in the Southwest Botanical Province of WA (Beard 1979) within the Swan Coastal Plain (SCP) bioregion and the Perth subregion as described by the Interim Biogeographic Regionalisation of Australia (IBRA) (Commonwealth of Australia 2012).

The SCP bioregion is a low lying coastal plain, mainly covered with woodlands. The Perth subregion is composed of colluvial and aeolian sands, alluvial river flats and costal limestone. Heath and/or Tuart woodlands occur on limestone, Banksia and Jarrah-Banksia woodlands on Quaternary marine dunes of various ages and Marri on colluvial and alluvial soils. The subregion also includes a complex series of seasonal wetlands (Mitchell et al. 2002).

3.5.1 Vegetation associations

Broad scale (1:250,000) pre-European vegetation mapping of the area has been completed by Beard (1979) at an association level. The mapping indicates that two vegetation associations intersect the Survey Area:

- Medium woodland; tuart & jarrah (association 6)
- Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina (association 1001).

The pre-European mapping has been adapted and digitised by Shepherd et al. (2002). The extent of vegetation associations have been determined by the state-wide vegetation remaining extent calculations maintained by DBCA, most recently updated in 2019 (Department of Biodiversity Conservation and Attractions 2019b). The 2019 extent remaining of vegetation association 6 is 23.72% of pre-European extent at state, regional and subregional level, and less than 5% at Local Government Authority (LGA) levels in the City of Melville, City of South Perth and Town of Victoria Park while above 20% in the city of Perth. (Table 8). The extent remaining of vegetation association 1001 is 22.05% at state, regional and subregional level, and 0.66% at LGA level in the Town of Victoria Park (Table 8).

Regional vegetation complexes have been mapped by Heddle et al. (1980) with updates from Webb et al. (2016) based on major geomorphic units on the SCP. The mapping indicates that the Survey Area occurs within one vegetation complex:

- **Vasse Complex:** Mixture of the closed scrub of *Melaleuca* species fringing woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca* species and open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri). Will include areas dominated by *Tecticornia* and *Salicornia* species (Samphire) near Mandurah and south of the Capel River.

The DBCA and DWER have assessed the vegetation complexes against presumed pre-European extents within the SCP IBRA bioregion and the LGA level respectively (Table 9). At the bioregion and LGA level in the City of South Perth, the Bassendean Complex – Central and South has less than 30% and 3% pre-European extent remaining, respectively (Department of Biodiversity Conservation and Attractions 2019c). At the bioregion and LGA level in the City of Perth, City of South Perth and the Town of Victoria Park, the Vasse Complex has greater than 30% and less than 2% pre-European extent remaining, respectively (Department of Biodiversity Conservation and Attractions 2019c).

Table 8 Extent of pre-European vegetation associations mapped within the Survey Area

Vegetation association	Scale	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	% Current extent in all DBCA managed land (proportion of Current Extent)
6	State: Western Australia	56,343.01	13,362.25	23.72	39.83
	IBRA bioregion: SCP	56,343.01	13,362.25	23.72	39.83
	IBRA Subregion: Perth	56,343.01	13,362.25	23.72	39.83
	LGA: City of Melville	3,687.84	155.72	4.22	4.62
	LGA: City of Perth	1,377.03	332.35	24.14	96.34
1001	State: Western Australia	57,410.23	12,660.76	22.05	14.19
	IBRA bioregion: SCP	57,410.23	12,660.76	22.05	14.19
	IBRA Subregion: Perth	57,410.23	12,660.76	22.05	14.19

Table 9 Extent of vegetation complex on the SCP and LGA level mapped within the Survey Area

Vegetation Complex	Scale	Pre–European Extent (ha)	Current Extent (ha)	% Remaining	Current percentage remaining within all DBCA managed land (%)
Vasse Complex	IBRA bioregion: SCP	15,691.63	4,926.97	31.40	14.62
	LGA: City of Perth	512.40	9.19	1.79	0

3.6 Vegetation and flora

3.6.1 Significant ecological communities

A review of the DBCA TEC and PEC database (Department of Biodiversity, Conservation and Attractions 2025) and the EPBC Act PMST (Department of Climate Change, Energy, the Environment and Water 2022a) identified the presence of listed communities previously recorded within the Study Area. Table 10 details TECs identified by the PMST report in the Study Area and the TECs/PECs identified by the DBCA TEC and PEC database within 250 m of the Survey Area.

The locations of the TECs and PECs in the vicinity of the Study Area are mapped in Figure 7, Appendix A.

Table 10 Threatened and Priority Ecological Communities surrounding the Survey Area

Community name	Status		Description	Distance from Survey Area
	EPBC Act	BC Act/ DBCA		
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Priority 3	Canopy is most commonly dominated or co-dominated by *Banksia attenuata* and/or *B. menziesii*. Other Banksia species that can dominate in the community are *B. prionotes* or *B. ilicifolia*. It typically occurs on well drained, low nutrient soils on sandplain landforms, particularly deep Bassendean and Spearwood sands and occasionally on Quindalup sands; it is also common on sandy colluvium and aeolian sands of the Ridge Hill Shelf, Whicher Scarp and Dandaragan Plateau and can occur in other less common scenarios.	PMST: In feature area DBCA: 60 m south from Applecross site
Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the	Critically Endangered	Priority 3	Mostly confined to Quindalup Dunes and Spearwood Dunes but can also occur on the Bassendean dunes and Pinjarra Plain. It can occur on the banks of rivers and wetlands. Tuart is the key upper canopy species although	PMST: In feature area

Community name	Status		Description	Distance from Survey Area
	EPBC Act	BC Act/ DBCA		
Swan Coastal Plain ecological community			it may co-occur with trees of other species. Trees commonly co-occurring with Tuart include *Agonis flexuosa* (peppermint), *Banksia grandis*, *Banksia attenuata*, *Eucalyptus marginata*; and less commonly, *Corymbia calophylla*, *Banksia menziesii* and *Banksia prionotes*. An understorey of native plants is typically present, which may include grasses, herbs and shrubs.	DBCA: 630 m north Matilda Bay site
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Priority 3	Consists of the assemblage of plants, animals and micro-organisms associated with saltmarsh in coastal regions of sub-tropical and temperate Australia (south of 23°S latitude). It occurs on the coastal margin, along estuaries and coastal embayments and on low wave energy coast in places with at least some tidal connection, including rarely-inundated supratidal areas, intermittently opened or closed lagoons, and groundwater tidal influences. The community occurs on sandy or muddy substrate and may include coastal clay pans and similar habitats. It consists of dense to patchy areas of characteristic coastal saltmarsh plant species that include salt- tolerant herbs, succulent shrubs or grasses, and may also include bare sediment as part of the mosaic. It can occur where the proportional cover by tree canopy such as mangroves, *Melaleucas* or *Casuarinas* or seagrass is not greater than 50%.	PMST: In buffer area only (10 km)
Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion	Critically Endangered	N/A	The Honeymyrtle shrubland is the assemblage of plants, animals and other organisms associated with a type of warm temperate shrubland or heath, dominated by *Melaleuca huegelii* (chenille honeymyrtle), *M. systena* (coastal honeymyrtle), and/or *Banksia sessilis* (parrot bush). It occurs only in southwest Western Australia (WA). It is known from a small number of locations in the Swan Coastal Plain IBRA1 Bioregion (SWA). It is a shrub-dominated ecological community, with sclerophyll shrubs forming thickets or heaths, above a typically diverse ground layer of herbs, including sedges, Restionaceae and occasional grasses. Honeymyrtle shrubland only occurs on the slopes and tops of limestone ridges on the Swan Coastal Plain. Its plants provide food for a variety of nectar-, seed- and fruit-eating birds, and browsing for mammals. The associated rocky and sandy substrates provide ample reptile basking sites, and the shrub layer gives them cover.	PMST: In buffer area only (10 km) DBCA: N/A
Empodisma peatlands of southwestern Australia	Endangered	N/A	*Empodisma* peatlands is the assemblage of plants, animals and other organisms associated with a type of freshwater, peat-based wetland that is found in the High Rainfall Province of the south-west of Western Australia. It is typically a sedgeland to shrubland vegetation complex on peaty substrates that almost always includes the perennial grass-like twig rush *Empodisma gracillimum* (tanglefoot). *Empodisma* peatlands provide habitat for a diverse range of hydrophilic species, including threatened, regionally endemic, and relictual flora and fauna species.	PMST: In buffer area only (10 km) DBCA: N/A

[1]: (Department of Biodiversity, Conservation and Attractions 2021b); (Department of Biodiversity, Conservation and Attractions 2018b)

3.6.2 Flora diversity

The *NatureMap* and *Dandjoo* database search, featuring a 10 km buffer radius of the Survey Area, identified 2,095 flora taxa (both species and sub-species) previously recorded. These consisted of 674 species of Monocot, 1,392 species of Dicot, 13 species of Ferns, 10 species of Gymnosperms and six species of Liverworts. Due to the potential for duplications and minor inaccuracies with both *NatureMap* and *Dandjoo* searches, some exclusions and omissions were made from the original results. The species exclusions are based on lack or suitable habitat within the Survey Area. Other records have been omitted due to taxonomic errors within the DBCA database resulting in multiple listings of taxa under superseded names. The *NatureMap* and *Dandjoo* database search is provided in Appendix C.

3.6.3 Significant flora

The EPBC Act PMST, *NatureMap* database and DBCA TPFL and WAHERB databases identified the presence or potential presence of 167 significant flora taxa within the Study Area (10 km radius of the Survey Area). There were no significant flora records from the DBCA TPFL or WAHERB within the Survey Area. The desktop searches recorded the potential for the following listed species:

- Five species listed as Critically Endangered (CR) under the Federal EPBC Act and WA State DBCA BC Act.
- 30 species listed as Endangered (EN) under the Federal EPBC Act and WA State DBCA BC Act.
- Eight species listed as Vulnerable (VU) under the Federal EPBC Act and WA State DBCA BC Act.
- 17 species listed as Priority 1 (P1) under the WA State DBCA BC Act.
- 26 species listed as Priority 2 (P2) under the WA State DBCA BC Act.
- 51 species listed as Priority 3 (P3) under the WA State DBCA BC Act.
- 30 species listed as Priority 4 (P4) under the WA State DBCA BC Act.

The significant flora species identified in the desktop assessment are provided in the likelihood of occurrence table (Appendix D).

3.7 Fauna

3.7.1 Fauna diversity

The *NatureMap* database identified 479 terrestrial vertebrate fauna taxa (species and sub-species) within the Study Area comprising 13 amphibians, 48 mammals, 339 birds, and 79 reptiles. A number of these taxa namely marine species of mammals, reptiles and fish have been omitted from this likelihood of occurrence assessment in Appendix E**.** Species exclusions are based on lack or suitable habitat within the Survey Area. Other records have been omitted due to taxonomic errors within the DBCA database resulting in multiple listings of taxa under superseded names. The *NatureMap* database search is provided in Appendix C.

3.7.2 Significant fauna

Desktop searches of the EPBC Act PMST, *NatureMap*, DBCA Threatened Fauna databases identified the presence/potential presence of 94 significant fauna species. This number excludes non-relevant species including pelagic or marine mammals and reptiles that have had no recent records within the marine habitat aspects of the Study Area, historical records of regionally extinct taxa and erroneous database records. Specifically, the significant fauna species identified consisted of:

- Five species listed as Critically Endangered (CR) under the Federal EPBC Act and WA State DBCA BC Act.
- 13 species listed as Endangered (EN) under the EPBC Act and WA State DBCA BC Act.
- 23 species listed as Vulnerable (VU) under the EPBC Act and WA State DBCA BC Act.
- 35 species listed as Migratory (MI) under the EPBC Act and WA State DBCA BC Act.
- One species listed as Conservation Dependent (CD) under the WA State DBCA BC Act.
- One species listed as Other Special Protection Status (OS) under the under the WA State DBCA BC Act.
- Eight species listed as Priority 4 (P4) under the WA State DBCA BC Act.
- Eight species listed as Priority 3 (P3) under the WA State DBCA BC Act.

All significant fauna identified in the searches are presented in the likelihood of occurrence assessment (Appendix E).

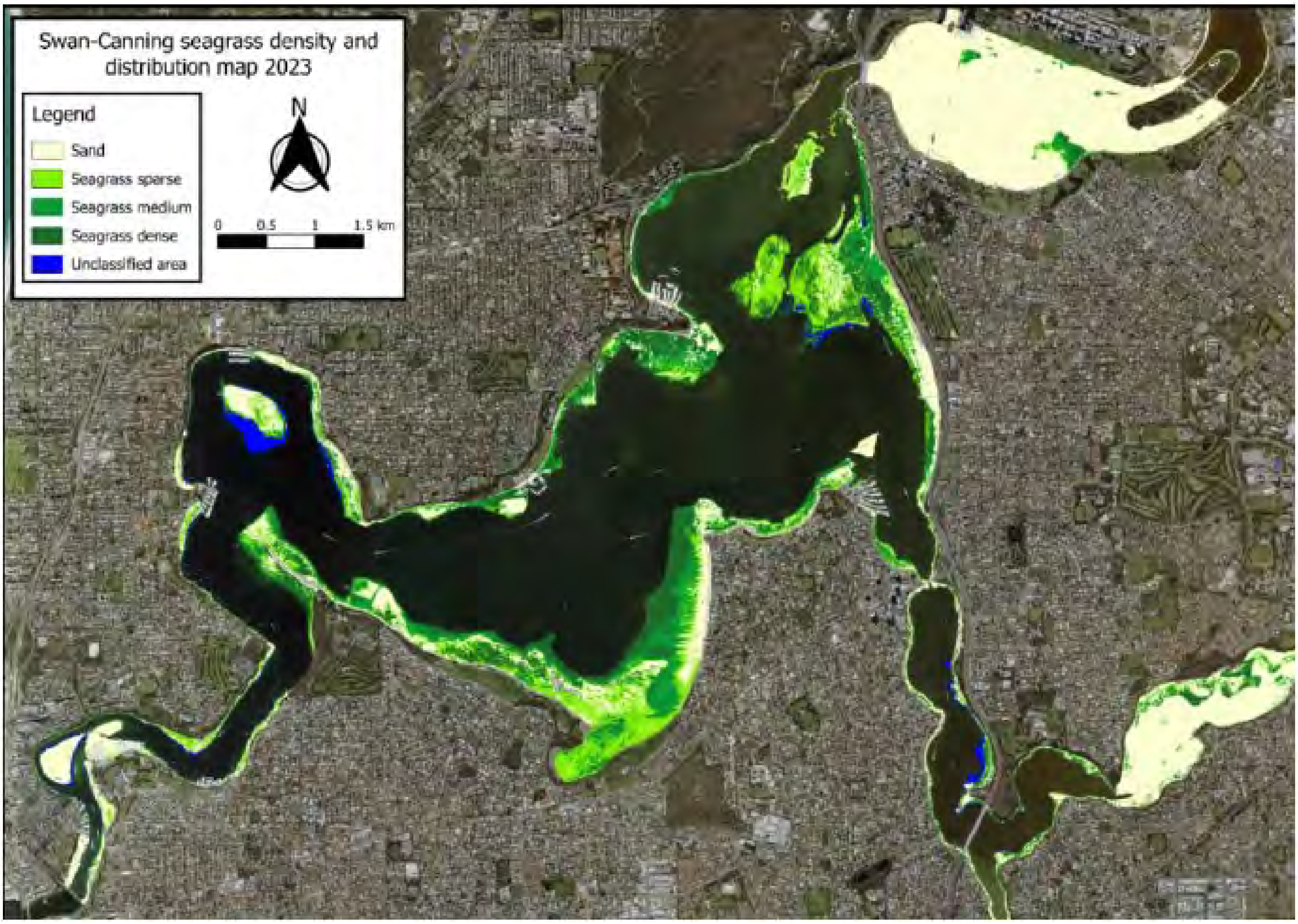
3.7.3 Black Cockatoos

A search of the DBCA database and Great Cockie Count Database (GCC) from Birdlife Australia (2023) identified numerous local records of Black Cockatoo roosting sites, (Department of Biodiversity, Conservation and Attractions 2019e). The Matilda Bay site intersects with buffers of confirmed sites – identified through both the GCC dataset the DBCA Black Cockatoo Roosting Sites (DBCA-064) dataset. These correspond with confirmed roosting sites approximately 800 m west of the Matilda Bay survey site. The nearest roosting site to Elizabeth Quay is 1250 m west while the nearest to the Applecross site is 700 m south west. Figure 8, Appendix A displays breeding and roosting sites in the study area.

No breeding sites from the Black Cockatoo Breeding Sites - Buffered (DBCA-063) dataset intersect with the Study Area, with the nearest being approximately 22 km north from Elizabeth Quay in Joondalup (Department of Biodiversity, Conservation and Attractions 2019d).

3.7.4 Significant benthic habitat

The recent (2023) mapping by DBCA (2025d) identified seagrass in the shallow areas of the Swan-Canning Estuary, with varying density classifications (Map 1). Mapping indicates that seagrass is present in the surrounding area of the Elizabeth Quay, Applecross, and Matilda Bay survey sites. This data should be considered in conjunction with field observations to assess potential benthic habitat impacts. Detailed seagrass mapping around the three survey sites is presented in Figure 8 (Appendix A).



Map 1 Swan-Canning seagrass density and distribution map (DBCA 2025d)

4. Survey results – Applecross Site

4.1 Vegetation and flora

4.1.1 Vegetation types

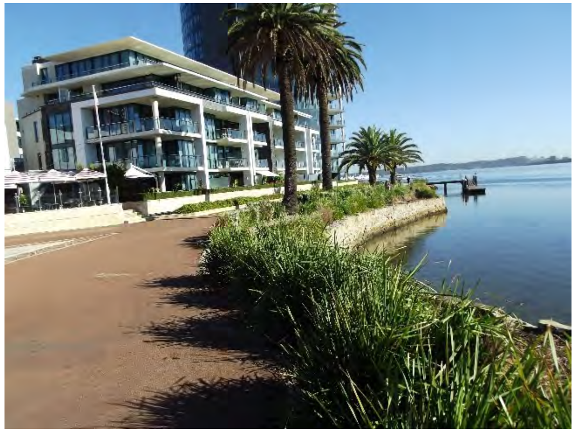
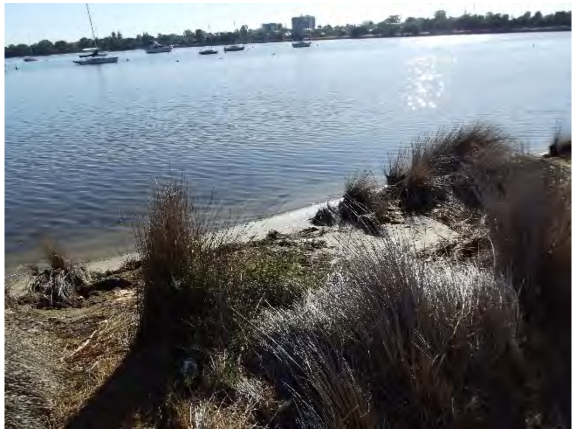
Based on the structural and floristic characteristics observed in the field, three vegetation types, none of which are considered to be remnant vegetation were recorded in the Survey Site.

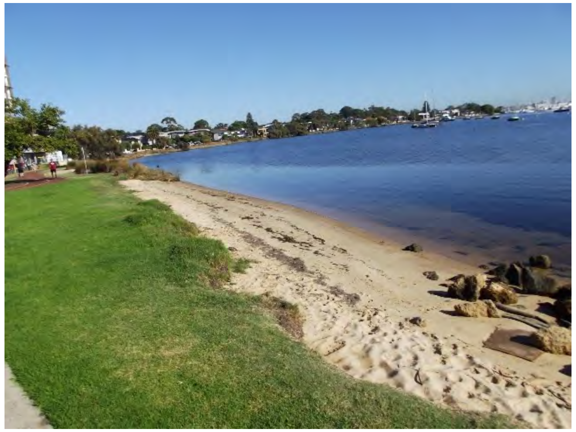
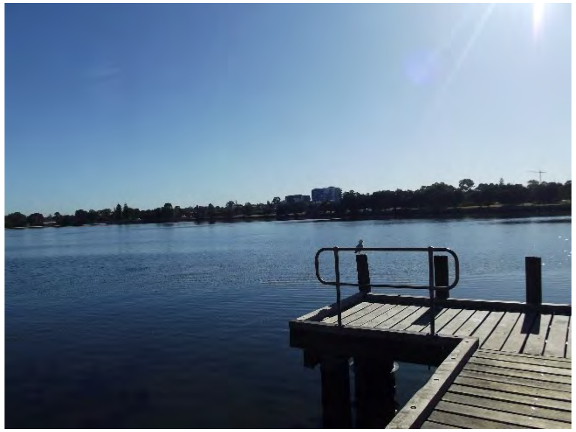
These vegetation types included:

- Replanting (VT01)
- Wetland/Shoreline (VT02)
- Parkland with Planted Trees (VT03)

The remaining areas have been mapped as Cleared. The vegetation types are described in Table 11 and mapped in Figure 10A (Appendix A).

Table 11 Recorded vegetation types for Applecross Survey Site

Vegetation type	Vegetation Type Description	Landform and Substrate	Extent (ha) and proportion of Survey Areas (%)	Photograph
VT01	Landscaped replanted areas consisting of mixed locally native and non-native species, typically patchy mixed native sedges and non-native palms, exotic flowering plants and shrubs.	Landscaped areas	0.15 ha (6.89%)	 Coordinates: -32.0109 115.8523 Photograph: Facing North-West
VT02	Wetland/Shore-bank vegetation consisting of highly modified previous shoreline wetland and estuarine vegetation communities with varying levels of reeds and *Melaleuca* species, and introduced River Oak (*Casuarina cunninghamiana*), as well as small sections of bulrush *(juncus kraussii).* Includes some native and exotic emergent aquatic plants.	Landscaped areas	0.07 ha (3.25%)	 Coordinates: -32.0099 115.8506 Photograph: Facing North

Vegetation type	Vegetation Type Description	Landform and Substrate	Extent (ha) and proportion of Survey Areas (%)	Photograph
VT03	Parkland areas consisting of planted trees over mown grass	Landscaped Areas	0.05 ha (2.75%)	 Coordinates: -32.0100 115.8512 Photograph: Facing North-West
Open Water	Open Water and Estuarine	-	1.66 ha (76.00%)	 Coordinates: -32.0102 115.8519 Photograph: Facing North-East

Vegetation type	Vegetation Type Description	Landform and Substrate	Extent (ha) and proportion of Survey Areas (%)	Photograph
Cleared	Completely devoid of vegetation	-	0.24 ha (11.00%)	 Coordinates: -32.0101 115.8519 Photograph: Facing North-West

4.1.2 Vegetation condition

The entire survey site has been cleared, with modifications carried out over time to the natural edge of the site, with artificial maritime structures bordering what would have historically been estuarine-based riparian shoreline and riverbank species or potentially *Banksia* and *Melaleuca* and *Eucalypt* species. Therefore, the vegetation types were not assigned a vegetation condition as they are not representative of native vegetation.

4.1.3 Significant ecological communities

No EPBC or state listed TECs, or DBCA listed PECs were recorded within the Survey Site.

4.1.4 Flora diversity

A total of six vascular flora species, were recorded in the Survey Site. Two of the flora species recorded were native taxa with the remaining four of not considered to be locally native to the area and classified as introduced. In the context of the current Survey Area and the vegetation types and descriptions, it is also important to note that the native species recorded were part of a re-planting activity. A species list by family type is presented in Appendix D.

4.1.5 Significant flora

No EPBC Act or BC Act listed flora were recorded within the Survey Site.

Likelihood of occurrence

A likelihood of occurrence assessment was conducted and post-field survey for significant flora taxa identified in the desktop assessment (Appendix D). The assessment took into account previous records, habitat requirements, efficacy of the survey, intensity of the survey, flowering times and the cryptic nature of species. The likelihood of occurrence assessment post-field survey concluded that no taxa identified by the desktop assessment are known to occur or likely to occur. This is due to a combination of known distribution, preferred habitat, visibility of the taxa during the field survey, and most significantly, the high level of disturbance and clearing throughout the Survey Site and conversion to artificial infrastructure and cleared sections of parkland.

4.1.6 Introduced flora

No observed flora species are listed as declared pest plants in WA under the BAM Act, or Weeds of National Significance (WoNS) (Australian Weeds 2012).

4.2 Fauna

4.2.1 Fauna habitat types

Three broad habitat types were identified within the Survey Site, based on the predominant vegetation structure and geography. These habitats generally align with the vegetation community types (VTs) described in 11, and mapped from the concurrent flora and vegetation assessment. The fauna habitats tend to be simple in structure and vegetation diversity as they are derived from relatively recent revegetation of trees, shrubs and wetlands plants comprising native and exotic species including *Melaleuca*, *Casuarina*, date palms, deciduous and evergreen trees. The habitat types include:

- Riparian, River and Shoreline
- Native and exotic plantings
- Parkland with planted trees
- Cleared areas
- Open water.

Fauna habitat are described in more detail in Table 12 and mapped in Figure 11A, Appendix A.

Table 12 Fauna habitat types within the Applecross Survey Site

Habitat Type	Description	Extent (ha) and proportion of Survey Areas (%)	Representative photograph
Native and exotic plantings (VT01)	This habitat type consists of areas of replanted native and exotic trees and some areas of scattered planted native shrubs. Exotic species include *Allocasuarina*, and exotic palm species. This habitat is very small in size and in representation of the overall Suver Area and lacked vegetation diversity and structure. The habitat provides very limited and small available foraging habitat for some common native perching bird species. Given the low overall quality and size of the habitat, no significant species are likely to use the habitat on a regular basis. However, the close proximity to open water sources and the Swan River may allow for occasional fly-over activity or temporary perching and resting from various migratory shorebirds and sea-birds.	0.13 ha (5.96%)	 Coordinates: -32.0101 115.8519 Photograph: Facing South
Riparian, River and Shoreline (VT02)	This habitat consists of waterbodies and shoreline systems with varying levels of reeds and *Melaleuca* species, and introduced River Oak (*Casuarina cunninghamiana*). Includes some native and exotic emergent aquatic plants. This habitat provides potential, temporary habitat for waterfowl and wading bird species such as black swans (*Cygnus atratus*), Pacific Black Ducks (*Anas superciliosus*) and locally common moorhens and swamphens. This habitat is not likely to be important for migratory birds due to lack of shallow open shoreline suitable as foraging habitat for waders, however they may occur occasionally as temporary foraging or resting-based visitation due to proximity to estuarine habitat of the Swan River. Furthermore, the highly degraded and altered state of the habitat type is unlikely to support wetland and shoreline mammalian species such as water rat (Rakali) (*Hydromys chrysogaster*).	0.07 ha (3.2%)	 Coordinates: -32.0099 115.8506 Photograph: Facing South

Habitat Type	Description	Extent (ha) and proportion of Survey Areas (%)	Representative photograph
Parkland	This habitat consists of landscaped areas or open parklands, garden beds, lawns with sections of recent native replanting and re-vegetation, which consists of both native and exotic species. The majority of these areas are regularly maintained and therefore weed presence and significant hollows, logs, leaf litter or rocks and crevices are few in number. The nature of the highly modified habitat with the lack of additional microhabitats and understory suggests that native mammal and reptile suitability is low, with the exception of possible use for brief foraging activity by Quenda (*Isoodon fusciventer).* Avian fauna species may utilise the area as part of brief, occasional foraging and resting activity. This may include significant-listed fauna species including Osprey (*Pandion haliaetus*), Peregrine Falcon (*Falco peregrinus*) and the three endemic Black Cockatoo Species.	0.05 ha (2.3%)	 Coordinates: -32.0100 115.8512 Photograph: Facing North-West
Open Water	Open Water and Estuarine Habitat featuring shallow and mid-level water systems close to shore. These areas are typically disturbed from persistent boating activity and previous infrastructure development but may allow for occasional foraging use by locally common marine mammal species such as bottlenose dolphins (*Tursiops aduncus*).	1.66 ha (76.00%)	 Coordinates: -32.0102 115.8519 Photograph: Facing North.
Completely Cleared Areas	Unmapped areas that include roads, cleared construction areas and lawn areas. These areas had little or no habitat value for fauna including significant species. May had some value for locally common birds.	0.24 ha (11.00%)	

4.2.2 Fauna diversity

The field survey recorded a total of eight birds, one mammal species, no reptiles and no fish species or frog species. This represents a small proportion of the total number of vertebrates that are likely or known to occur in the study area. One species across all vertebrate species groups recorded was introduced, that being the rainbow lorikeet (*Trichoglossus moluccanus)*. The full species list is provided in Appendix E.

With the exception of the recorded significant species, all are common widespread species known to utilise urban habitat in and modified wetlands and coastal and estuarine environments. From a species of cultural significance, black swans were recorded consistently across the Survey Site along shoreline sections and banks with or without the presence of riparian reedbed vegetation. Concentrations of the species were focussed on the outer edges of the Survey Areas where riparian vegetation and resting sections of shorelines were present. However, the majority of the Survey Areas does not contain habitat that would typically support a significant or persistent breeding population, which was reinforced by the absence of nesting activity, old or newly formed nesting mounds.

4.2.3 Significant fauna

During the field survey, no significant species were recorded. A further eight significant species, listed in Table 13 below, were assessed as Likely or Possibly occurring based on local occurrence and habitat availability.

Other significant fauna species include migratory birds that have historically been recorded locally due to the proximity of the Survey Site to neighbouring nature reserves and the Swan River, in most cases as vagrant visitors, or from rescued individual cases after heavy storm activity These species potentially occur within the Survey Areas as infrequent visitors on at least an occasional basis, although habitat value and quality are considered low for these species. Therefore, these migratory species have not been considered further in this assessment. The inclusion of certain migratory species and the exclusion of consideration of others stems from frequency of local occurrence and utilisation of shoreline and wetland habitats of the Swan Coastal Plain and Perth Metropolitan region. For example, numerous ocean-going seabirds (e.g. Albatross, prions) and shore-birds (plovers, sandpipers) have not typically been recorded or have breeding, nesting and core feeding habitats that are found in great abundance within the Survey Site or the surrounding environments. Furthermore, other migratory species such as Ospreys, Caspian terns and Crested Terns are known from consistent DBCA database records (DBCA 2025) and are known to utilise shoreline and artificial wetland and maritime habitats within the Survey Area and surrounding environments.

Table 13 Significant fauna identified as likely to occur or recorded within the Applecross Survey Site

Common name	Species Name	Status EPBC Act	Status DBCA BC Act	Likelihood of occurrence
Baudin’s Black Cockatoo	*Zanda baudinii*	EN	EN	**Possible**
Carnaby’s Black Cockatoo	*Zanda latirostris*	EN	EN	**Possible**
Forest Red-tailed Black Cockatoo	*Calyptorhynchus banksii naso*	VU	VU	**Possible**
Peregrine Falcon	*Falco peregrinus*	-	OS	**Possible**
Blue-billed duck	*Oxyura australis*	-	P4	**Possible**
Osprey	*Pandion haliaetus*	MI	MI	**Likely**
Caspian Tern	*Hydroprogne caspia*	MI	MI	**Possible**
Crested Tern	*Thalasseus bergii*	MI	MI	**Possible**

Peregrine Falcon (*Falco peregrinus*)

The Peregrine Falcon is listed by the DBCA as otherwise in need of special protection under section 18 of the BC Act. It is uncommon but wide ranging across Australia from woodlands to open grasslands and coastal cliffs, and occasionally in desert regions. It feeds almost entirely on other birds, although it occasionally eats rabbits and other moderate sized mammals, bats and reptiles. The Peregrine Falcon is very territorial during the breeding season, the male courting the female with an impressive display of aerobatics (DEE 2019b, Morcombe 2004). Nest sites include tall trees, cliffs, and elevated artificial structures that provide a secluded and secure platform.

This species was not recorded during the survey and no nest sites were recorded. However, the species has been recorded as utilising urbanised areas along the Swan River and Swan Coastal Plain region, including coastal environments. Therefore, the species may possibly utilise the Survey Areas at least on an occasional basis for perching and resting periods or as part of fly-over activity.

Baudin’s Cockatoo (*Zanda baudinii*)

The Baudin’s Cockatoo is listed as Endangered under the EPBC Act and BC Act. This species is endemic to the south-west of WA. The range of Baudin's Cockatoo varies considerably between the breeding and non-breeding seasons. During the breeding season (from October to January), the species nests in isolated pockets of the far south-west of WA within Jarrah, Marri and Karri forests which receive an average of 750 mm of rainfall annually. In addition to the south-west, there is an isolated patch of known breeding recorded at Perth Hills, east of Armadale (Johnstone & Storr 1998, Johnstone & Kirkby 2008).

Breeding generally occurs in woodland or forest but may also occur in former woodland or forest now present as isolated trees withing partially cleared parkland or farmland. Nesting occurs in hollows of live or dead Karri, Marri, Wandoo and Tuart (*Eucalyptus gomphocephala*) trees (DSEWPaC 2012). During the breeding season feeding primarily occurs in native vegetation, particularly Marri (DSEWPaC 2012). The range then expands during the non-breeding season (from February) as flocks disperse to forage more widely, congregating on the central and northern parts of the Darling plateau, as far as Mundaring and Gidgegannup (DSEWPaC 2012; Saunders 1974 & 1979).

No birds were observed or recorded during the survey, no evidence of foraging or feeding evidence was recorded within the Survey Areas. However, the high number of confirmed recordings of the species throughout neighbouring locations to the current Survey Site suggests that the species may temporarily utilise the site for perching, resting or temporary fly-over activity, albeit for brief periods. The utilisation for long-term, significant persistence with regards to feeding, foraging or breeding, however, is highly unlikely.

Carnaby’s Cockatoo (*Zanda latirostris*)

The Carnaby’s Cockatoo is listed as Endangered under the EPBC Act and BC Act. This species is endemic to the south-west of WA from near Cape Arid on the south coast through the eastern Wheat Belt and north to about Kalbarri. Carnaby’s Cockatoo nest in hollows of live or dead eucalyptus, primarily smooth-barked salmon gum (*Eucalyptus salmonophloia*) and Wandoo (*E. wandoo*) (Saunders 1979, 1982) though breeding has been reported in other Wheatbelt tree species and some tree species on the Swan Coastal Plain and Jarrah forest (Saunders 1979, 1982, Storr 1991, Johnstone & Storr 1998).

Success in breeding is dependent on sufficient high quality foraging habitat located in proximity of nesting and is nominally a radius of up to 12km of nesting sites (Saunders 1979, 1982, Saunders and Ingram 1987). High quality foraging habitat includes Kwongan heathlands and Banksia woodlands having abundant Banksia species and other proteaceous plants.

No birds were observed or recorded during the survey, no evidence of foraging or feeding evidence was recorded within the Survey Site. However, the high number of confirmed recordings of the species throughout neighbouring locations to the current Survey Areas suggests that the species may temporarily utilise the site for perching, resting or temporary fly-over activity, albeit for brief periods. The utilisation for long-term, significant persistence with regards to feeding, foraging or breeding, however, is highly unlikely.

Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)

The Forest Red-tailed Black Cockatoo inhabits the dense jarrah, karri, and marri forests receiving more than 600 mm annual average rainfall but also occurs in a range of other forest and woodland types, including Blackbutt (*E. patens*), Wandoo (*E. wandoo*), Tuart (*E. gomphocephala*), Albany Blackbutt (*E. staeri*), Yate (*E. cornuta*), and Flooded Gum (E. rudis) (DEE 2017). Habitats tend to have an understorey or snottygobble (*Persoonia* spp.), holly-leaved mirbelia (*Mirbelia dilatata*), *Taxandria spp.* and sheoak (*Allocasuarina fraseriana*). They are most common in the jarrah forest region of the northern Darling Range from Collie north to Mundaring and are very local throughout the lower south-west. They can be found on the Swan Coastal Plain, mainly in search of food the exotic white cedar (*Melia azedarach*). There are also several small, isolated populations in the eastern parts of its range (DAWE 2022).

No birds were observed or recorded during the survey, no evidence of foraging or feeding evidence was recorded within the Survey Site. However, the high number of confirmed recordings of the species throughout neighbouring locations to the current Survey Site suggests that the species may temporarily utilise the site for perching, resting or temporary fly-over activity, albeit for brief periods. The utilisation for long-term, significant persistence with regards to feeding, foraging or breeding, however, is highly unlikely.

Caspian Tern (*Hydroprogne caspia*)

The Caspian Tern is a migratory coastal and oceanic specialised species member of the gull family Laridae and is easily distinguished by its significantly larger size (the largest of all tern species globally) and its significant and prominent, elongated red bill. The species is currently listed as Migratory and under the EPBC Act and DBCA BC Act. This species is mostly associated with sheltered coasts such as harbours, bays, estuaries, etc. They can also be found in inland terrestrial wetlands (saline or fresh) or man-made bodies of water (lakes or reservoirs). (DCCEEW).

No recordings of the species were made during the survey of the Applecross Survey Site, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within close proximity to the current Survey Areas and the additional close proximity of the Survey Areas to open water sources and nearby perching and resting sites suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity.

Crested Tern (*Thalasseus bergii*)

The Crested Tern is a migratory coastal and oceanic specialised species member of the gull family Laridae, and is easily distinguished by its yellow- coloured bill and extended, mobile crest arrangement for head feathers. The species is currently listed as Migratory and under the EPBC Act and DBCA BC Act.

This species inhabits tropical and subtropical coastlines, foraging in the shallow waters of lagoons, coral reefs, estuaries, bays, harbours and inlets, along sandy, rocky, coral or muddy shores, on rocky outcrops in open sea, in mangrove swamps and also far out to sea on open water. It shows a preference for nesting on offshore islands, low-lying coral reefs, sandy or rocky coastal islets, coastal spits, lagoon mudflats, and artificial islets in saltpans and sewage works within 3 km of the coast. (BirdLife International, 2023).

No recordings of the species were made during the survey of the Survey Site , and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within close proximity to the current Survey Site and the additional close proximity of the Survey Areas to open water sources and nearby perching and resting sites suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity.

Blue-billed Duck (*Oxyura australis)*

The blue-billed duck is a small Australian, almost entirely aquatic duck, with both the male and female growing to a length of 40 cm. The male has a slate-blue bill which changes to bright blue during the breeding season (Morcombe 2004). The species is listed as a Priority 4 (P4) significant species under the DBCA BC Act.

The blue-billed duck is endemic to Australia’s temperate regions, ranging from the southwest of Western Australia, extending to southern Queensland, through New South Wales and Victoria, to Tasmania. The species is readily seen on freshwater lakes and billabongs where deep fresh water is present (Morcombe 2004).

No recordings of the species were made during the survey of the Applecross Survey Site, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within close proximity to the current Survey Site and the additional close proximity of the Survey Areas to readily used lakes and remnant shores and banks of higher habitat value suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity.

Osprey (*Pandion haliaetus)*

The Osprey is a medium to large bird of prey within the sea-hawk genus group of the Accipiteriformes order of larger raptor species, with specialised beak and talon properties for marine, coastal and inland freshwater predation and habitats. The species is currently listed as Migratory under the EPBC Act and the DBCA BC Act.

Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia. They require extensive areas of open fresh, brackish or saline water for foraging (Marchant & Higgins 1993). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes. They exhibit a preference for coastal cliffs and elevated islands in some parts of their range, but may also occur on low sandy, muddy or rocky shores and over coral cays.

No recordings of the species were made during the survey of the Applecross Survey Site and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within close proximity to the current Survey Site and adjacent readily used lakes and remnant shores and banks of higher habitat value, suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity. Furthermore, this species will readily utilise man-made infrastructure for short-term perching and even occasional nesting activity when bordering coastlines or the banks and shores of suitable marine and freshwater feeding areas. Therefore, the species is likely to occasionally utilise the current Survey Site for such purposes.

5. Survey results – Elizabeth Quay Site

5.1 Vegetation and flora

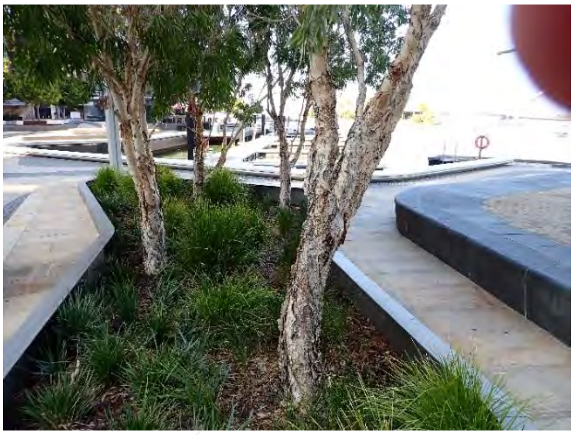
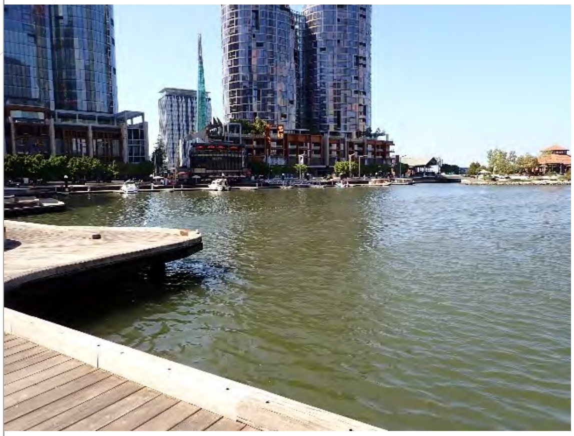
5.1.1 Vegetation types

Based on the structural and floristic characteristics observed in the field, one vegetation type, which is not considered to be remnant vegetation were recorded in the Survey Site:

– Replanting (VT01)

The remaining areas have been mapped as Cleared. The vegetation types are described in Table 13 and mapped in Figure 10B (Appendix A).

Table 14 Recorded vegetation types for Elizabeth Quay Survey Site

Vegetation type	Vegetation Type Description	Landform and Substrate	Extent (ha) and proportion of Survey Areas (%)	Photograph
VT01	Landscaped re-planted areas consisting mixed locally native and non-native species, typically *Melaleuca sp, Ficus sp.,* and non-native, exotic flowering plants and shrubs.	Landscaped areas	0.002 ha (2.05%)	 Coordinates: -31.9577 115.8575 Photograph: Facing North
Open Water	Open Water and Estuarine	-	0.046 ha (49.56%)	 Coordinates: -31.9577 115.8575 Photograph: Facing East
Cleared Areas	Completely devoid of vegetation	-	0.045 ha (48.39%)	

5.1.2 Vegetation condition

The entire Survey Site has been cleared, with modifications carried out over time to the natural edge of the site, with artificial maritime structures bordering what would have historically been estuarine-based riparian shoreline and riverbank species or potentially *Banksia* and *Melaleuca* and *Eucalypt* species. Therefore, the vegetation types were not assigned a vegetation condition as they are not representative of native vegetation.

5.1.3 Significant ecological communities

No EPBC or state listed TECs, or DBCA listed PECs were recorded within the Survey Site.

Vegetation recorded within the Survey Site does not meet the structural or compositional criteria to represent any of the TEC or PECs which have been identified within the desktop-based Study Area.

5.1.4 Flora diversity

A total of five vascular flora species, were recorded in the Survey Site. Three of the flora recorded were native taxa, with the remaining two species not considered to be locally native to the area and classified as introduced. In the context of the current Survey Site and the vegetation types and descriptions, it is also important to note that the native species recorded were part of a re-planting activity. A species list by family type is presented in Appendix D.

5.1.5 Significant flora

No EPBC Act or BC Act listed flora were recorded within the Survey Site, and no priority-listed species flora species were recorded within the Survey Site. Furthermore, no significant tree species of conservation significance for species such as black cockatoos or individual groupings of mature, higher ecological value were identified or recorded within the Survey Area.

Likelihood of occurrence

A likelihood of occurrence assessment was conducted post-field survey for significant flora taxa identified in the desktop assessment (Appendix D). The assessment took into account previous records, habitat requirements, efficacy of the survey, intensity of the survey, flowering times and the cryptic nature of species.

The likelihood of occurrence assessment post-field survey concluded that no taxa identified by the desktop assessment are known to occur or likely to occur. This is due to a combination of known distribution, preferred habitat, visibility of the taxa during the field survey, and most significantly, the high level of disturbance and clearing throughout the Survey Site and its conversion to maritime infrastructure.

5.1.6 Introduced flora

No observed flora species are listed as declared pest plants in WA under the BAM Act, or Weeds of National Significance (WoNS) (Australian Weeds 2012).

5.2 Fauna

5.2.1 Fauna habitat types

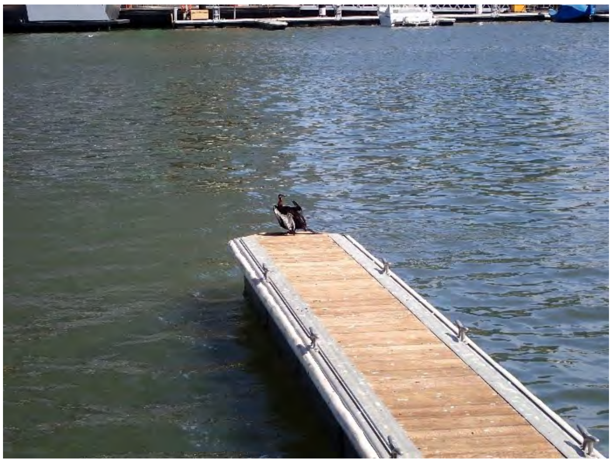
Two broad habitat types were identified within the Survey Site, based on the predominant vegetation structure and geography. These habitats generally align with the vegetation community types (VTs) described Table 14 and mapped from the concurrent flora and vegetation assessment. The fauna habitats tend to be simple in structure and vegetation diversity as they are all derived from relatively recent revegetation of trees and plants comprising native and exotic species including *Eucalyptus*, *Melaleuca*, *Casuarina*, palms, deciduous and evergreen trees. Consequently, much of the habitat types were largely artificial. The habitat types include:

- Native and exotic mixed plantings
- Cleared Areas.

Fauna habitat are described in more detail in Table 15 and mapped in Figure 11B (Appendix A).

Although not part of the scope of this terrestrial study, the recent mapping by the Department of Biodiversity, Conservation and Attractions (DBCA, 2025d) identified seagrass in the vicinity of the three study sites. While these areas are subject to frequent disturbance from boating and urban activity, the presence of seagrass may contribute to local benthic habitat value and support occasional foraging by marine fauna such as bottlenose dolphins (*Tursiops aduncus*) and migratory bird species. This mapping provides important context for assessing potential ecological connectivity for consideration in the broader environmental approvals process.

Table 15 Recorded Fauna Habitat Types for Elizabeth Quay Survey Site

Habitat Type	Habitat Description	Extent (ha) and proportion of Survey Areas (%)	Photograph
Native and exotic mixed plantings (VT01)	This habitat type consists of areas of replanted native and exotic trees and some areas of scattered planted native shrubs and wetland reed species. This habitat is very small in size and in representation of the overall Suver Area and lacked vegetation diversity and structure. The habitat provides very limited and small available foraging habitat for some common native perching bird species. Given the low overall quality and size of the habitat, no significant species are likely to use the habitat on a regular basis. However, the close proximity to open water sources and the Swan River may allow for occasional fly-over activity or temporary perching and resting from various migratory shorebirds and sea-birds.	0.002 ha (2.05%)	 Coordinates: -31.9577 115.8575 Photograph: Facing North
Open Water	Open Water and Estuarine Habitat featuring shallow and mid-level water systems close to shore. These areas are typically disturbed from persistent boating activity and previous infrastructure development but may allow for occasional foraging use by locally common marine mammal species such as bottlenose dolphins (*Tursiops aduncus*).	0.046 ha (49.56%)	 Coordinates: -31.9577 115.8575 Photograph: Facing East
Cleared Areas	Unmapped areas that include roads, cleared construction areas and lawn areas along with maritime infrastructure. These areas had little or no habitat value for fauna including significant species. May had some value for locally common birds.	0.045 ha (48.39%)	

5.2.2 Fauna diversity

The field survey recorded a total of four birds, no mammals, no reptile and no fish species. While this total represents a small proportion of the total number of vertebrates that have historically been recorded through previous desktop and database searches, the low total recorded in this instance reflects the level of disturbance and cleared habitat of the Survey Site which does not provide habitat for a large abundance and diversity of vertebrate species. One of the species, was introduced, the domestic pigeon (*Columba livia*). The full species list is provided in Appendix E.

All recorded species are common, widespread species known to utilise urban habitat in and modified shoreline, coastal environments.

5.2.3 Significant fauna

During the field survey, no significant species were recorded. A further eight significant species, which are listed in Table 16, are considered either likely to occur or may possibly occur based on local occurrence and habitat availability suited to that particular species, with one such species assessed as likely, with the remaining seven assessed as possibly occurring.

Other significant fauna species may include migratory birds that have been recorded locally due to the proximity of the Survey Site to the estuarine habitat of the Swan River. However, these species are likely to be infrequent visitors from a purely fly-over activity basis, based on the small area size, highly cleared and altered state of the Survey Site. The Survey Site represents very low habitat value for these migratory species and they have therefore not been considered further in this assessment.

Table 16 Significant Fauna Species Assessment for Eliazbeth Quay Survey Site

Common Name	Species Name	Conservation Status EPBC Act	Conservation Status BC Act/DBCA	Likelihood
Baudin’s Black Cockatoo	*Zanda baudinii*	EN	EN	Possible.
Carnaby’s Black Cockatoo	*Zanda latirostris*	EN	EN	Possible.
Forest Red-tailed Black Cockatoo	*Calyptorhynchus banksii naso*	VU	VU	Possible.
Peregrine Falcon	*Falco peregrinus*	-	OS	Possible
Blue-billed duck	*Oxyura australis*	-	P4	Possible.
Osprey	*Pandion haliaetus*	MI	MI	Likely.
Caspian Tern	*Hydroprogne caspia*	MI	MI	Possible.
Crested Tern	*Thalasseus bergii*	MI	MI	Possible.

Peregrine Falcon (*Falco peregrinus*)

The Peregrine Falcon is listed by the DBCA as otherwise in need of special protection under section 18 of the BC Act. It is uncommon but wide ranging across Australia from woodlands to open grasslands and coastal cliffs, and occasionally in desert regions. It feeds almost entirely on other birds, although it occasionally eats rabbits and other moderate sized mammals, bats and reptiles. The Peregrine Falcon is very territorial during the breeding season, the male courting the female with an impressive display of aerobatics (DEE 2019b, Morcombe 2004). Nest sites include tall trees, cliffs, and elevated artificial structures that provide a secluded and secure platform.

This species was not recorded during the survey and no nest sites were recorded. However, the species has been recorded as utilising urbanised areas along the Swan River and Swan Coastal Plain region, including coastal environments. Therefore, the species may possibly utilise the Survey Site at least on an occasional basis for perching and resting periods or as part of fly-over activity.

Baudin’s Cockatoo (*Zanda baudinii*)

The Baudin’s Cockatoo is listed as Endangered under the EPBC Act and BC Act. This species is endemic to the south-west of WA. The range of Baudin's Cockatoo varies considerably between the breeding and non-breeding seasons. During the breeding season (from October to January), the species nests in isolated pockets of the far south-west of WA within Jarrah, Marri and Karri forests which receive an average of 750 mm of rainfall annually. In addition to the south-west, there is an isolated patch of known breeding recorded at Perth Hills, east of Armadale (Johnstone & Storr 1998, Johnstone & Kirkby 2008).

Breeding generally occurs in woodland or forest but may also occur in former woodland or forest now present as isolated trees withing partially cleared parkland or farmland. Nesting occurs in hollows of live or dead Karri, Marri, Wandoo and Tuart (*Eucalyptus gomphocephala*) trees (DSEWPaC 2012). During the breeding season feeding primarily occurs in native vegetation, particularly Marri (DSEWPaC 2012). The range then expands during the non-breeding season (from February) as flocks disperse to forage more widely, congregating on the central and northern parts of the Darling plateau, as far as Mundaring and Gidgegannup (DSEWPaC 2012; Saunders 1974 & 1979).

No birds were observed or recorded during the survey, no evidence of foraging or feeding evidence was recorded within the Survey Site. However, the high number of confirmed recordings of the species throughout neighbouring locations to the current Survey Site suggests that the species may temporarily utilise the site for perching, resting or temporary fly-over activity, albeit for brief periods. The utilisation for long-term, significant persistence with regards to feeding, foraging or breeding, however, is highly unlikely.

Carnaby's Cockatoo (*Zanda latirostris*)

The Carnaby's Cockatoo is listed as Endangered under the EPBC Act and BC Act. This species is endemic to the south-west of WA from near Cape Arid on the south coast through the eastern Wheat Belt and north to about Kalbarri. Carnaby's Cockatoo nest in hollows of live or dead eucalyptus, primarily smooth-barked salmon gum (*Eucalyptus salmonophloia*) and Wandoo (*E. wandoo*) (Saunders 1979, 1982) though breeding has been reported in other Wheatbelt tree species and some tree species on the Swan Coastal Plain and Jarrah forest (Saunders 1979, 1982, Storr 1991, Johnstone & Storr 1998).

Success in breeding is dependent on sufficient high quality foraging habitat located in proximity of nesting and is nominally a radius of up to 12 km of nesting sites (Saunders 1979, 1982, Saunders and Ingram 1987). High quality foraging habitat includes Kwongan heathlands and Banksia woodlands having abundant Banksia species and other proteaceous plants.

No birds were observed or recorded during the survey, no evidence of foraging or feeding evidence was recorded within the Survey Site. However, the high number of confirmed recordings of the species throughout neighbouring locations to the current Survey Site suggests that the species may temporarily utilise the site for perching, resting or temporary fly-over activity, albeit for brief periods. The utilisation for long-term, significant persistence with regards to feeding, foraging or breeding, however, is highly unlikely.

Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)

The Forest Red-tailed Black Cockatoo inhabits the dense jarrah, karri, and marri forests receiving more than 600 mm annual average rainfall but also occurs in a range of other forest and woodland types, including Blackbutt (*E. patens*), Wandoo (*E. wandoo*), Tuart (*E. gomphocephala*), Albany Blackbutt (*E. staeri*), Yate (*E. cornuta*), and Flooded Gum (E. rudis) (DEE 2017). Habitats tend to have an understorey or snottygobble (*Persoonia* spp.), holly-leaved mirbelia (*Mirbelia dilatata*), and sheoak (*Allocasuarina fraseriana*). They are most common in the jarrah forest region of the northern Darling Range from Collie north to Mundaring and are very local throughout the lower south-west. They can be found on the Swan Coastal Plain, mainly in search of food the exotic white cedar (*Melia azedarach*). There are also several small, isolated populations in the eastern parts of its range (DAWE 2022).

No birds were observed or recorded during the survey, no evidence of foraging or feeding evidence was recorded within the Survey Site. However, the high number of confirmed recordings of the species throughout neighbouring locations to the current Survey Site suggests that the species may temporarily utilise the site for perching, resting or temporary fly-over activity, albeit for brief periods. The utilisation for long-term, significant persistence with regards to feeding, foraging or breeding, however, is highly unlikely.

Caspian Tern (*Hydroprogne caspia*)

The Caspian Tern is a migratory coastal and oceanic specialised species member of the gull family Laridae, and is easily distinguished by its significantly larger size (the largest of all tern species globally) and its significant and prominent, elongated red bill. The species is currently listed as Migratory and under the EPBC Act and DBCA BC Act. This species is mostly associated with sheltered coasts such as harbours, bays, estuaries, etc. They can also be found in inland terrestrial wetlands (saline or fresh) or man-made bodies of water (lakes or reservoirs). (DCCEEW).

No recordings of the species were made during the survey of the Survey Site, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within proximity to the current Survey Areas and the additional close proximity of the Survey Areas to open water sources and nearby perching and resting sites suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity.

Crested Tern (*Thalasseus bergii*)

The Crested Tern is a migratory coastal and oceanic specialised species member of the gull family Laridae and is easily distinguished by its yellow- coloured bill and extended, mobile crest arrangement for head feathers. The species is currently listed as Migratory and under the EPBC Act and DBCA BC Act.

This species inhabits tropical and subtropical coastlines, foraging in the shallow waters of lagoons, coral reefs, estuaries, bays, harbours and inlets, along sandy, rocky, coral or muddy shores, on rocky outcrops in open sea, in mangrove swamps and also far out to sea on open water. It shows a preference for nesting on offshore islands, low-lying coral reefs, sandy or rocky coastal islets, coastal spits, lagoon mudflats, and artificial islets in saltpans and sewage works within 3 km of the coast. (BirdLife International, 2023).

No recordings of the species were made during the survey of the Survey Site, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within proximity to the current Survey Site and adjacent to open water sources and nearby perching and resting sites suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity.

Blue-billed Duck (*Oxyura australis)*

The blue-billed duck is a small Australian almost entirely aquatic duck, with both the male and female growing to a length of 40 cm. The male has a slate-blue bill which changes to bright blue during the breeding season (Morcombe 2004). The species is listed as a Priority 4 (P4) significant species under the DBCA BC Act.

The blue-billed duck is endemic to Australia’s temperate regions, ranging from the southwest of Western Australia, extending to southern Queensland, through New South Wales and Victoria, to Tasmania. The species is readily seen on freshwater lakes and billabongs where deep fresh water is present (Morcombe 2004).

No recordings of the species were made during the survey of the Survey Site, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within proximity to the current Survey Areas and the additional proximity of the Survey Areas to readily used lakes and remnant shores and banks of higher habitat value suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity.

Osprey (*Pandion haliaetus)*

The Osprey is a medium to large bird of prey within the sea-hawk genus group of the Accipitriformes order of larger raptor species, with specialised beak and talon properties for marine, coastal and inland freshwater predation and habitats. The species is currently listed as Migratory under the EPBC Act and the DBCA BC Act.

Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia. They require extensive areas of open fresh, brackish or saline water for foraging (Marchant & Higgins 1993). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes. They exhibit a preference for coastal cliffs and elevated islands in some parts of their range, but may also occur on low sandy, muddy or rocky shores and over coral cays.

No recordings of the species were made during the survey of the Survey Site, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within proximity to the current Survey Site and the additional close proximity of the Survey Site to readily used lakes and remnant shores and banks of higher habitat value suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity. Furthermore, this species will readily utilise man-made infrastructure for short-term perching and even occasional nesting activity when bordering coastlines or the banks and shores of suitable marine and freshwater feeding areas. Therefore, the species is likely to occasionally utilise the current Survey Site for such purposes.

6. Survey results – Matilda Bay Site

6.1 Vegetation and flora

6.1.1 Vegetation types

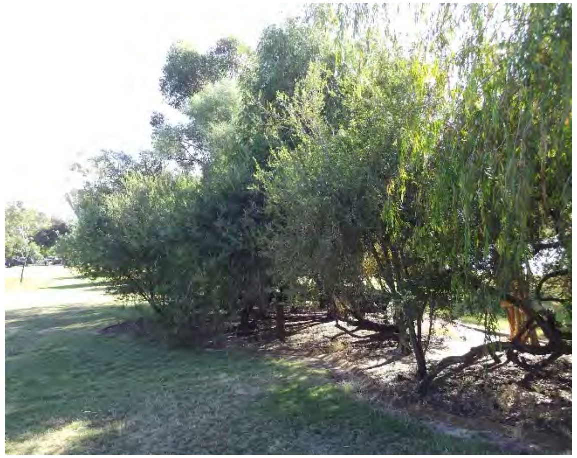
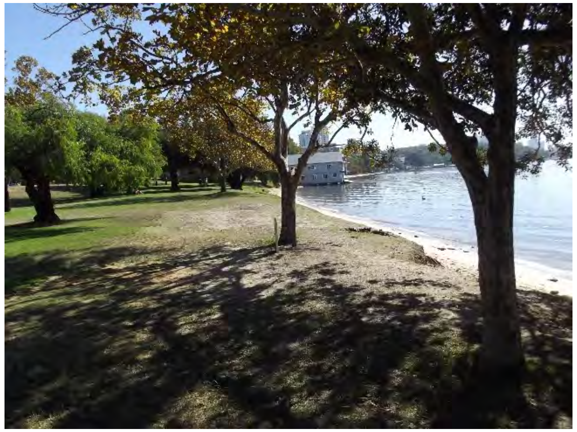
Based on the structural and floristic characteristics observed in the field, 3 vegetation types, none of which are considered native vegetation, were recorded in the two separate sections that comprised the overall Matilda Bay Survey Site.

These vegetation types included:

- Revegetation and Re-planting (VT01)
- Parkland areas consisting of planted trees over lawns. (VT02)
- Wetland/Waterline Shore-bank (VT03).

An additional section of the Survey Area has been mapped as Open Water. The remaining areas have been mapped as Cleared Areas. The vegetation types are described in Table 20 and mapped in Figure 10C (Appendix A).

Table 17 *Recorded Vegetation Types for Matilda Bay Survey Site*

Vegetation type	Vegetation Type Description	Landform and Substrate	Extent (ha) and proportion of Survey Areas (%)	Photograph
VT01	Replanted areas consisting of mixed locally native and non-native species, typically patchy mixed native sedges and non-native and native *Eucalypt* and *Melaleuca* species, exotic flowering plants and shrubs.	Landscaped areas	0.60 ha (11.93%)	 Coordinates: -31.978 115.8212 Photograph: Facing North
VT02	Parkland areas consisting of planted trees over mown grass consisting of *Melaleuca* sp., *Agonis* sp., individual Marri and Tuart *and Casuarina* sp. in low density.	Landscaped areas	0.17 ha (3.38%)	 Coordinates: -31.9773 115.8215 Photograph: Facing North

Vegetation type	Vegetation Type Description	Landform and Substrate	Extent (ha) and proportion of Survey Areas (%)	Photograph
VT03	Wetland/Shore-bank vegetation consisting of highly modified previous shoreline wetland and estuarine vegetation communities with varying levels of reeds and *Melaleuca* species, and introduced River Oak (*Casuarina cunninghamiana*), as well as small sections of bulrush *(Juncus kraussii).* Includes some native and exotic emergent aquatic plants.	Landscaped Areas	0.07 ha (1.39%)	 Coordinates: -31.9769 115.8219 Photograph: Facing North-East
Open Water	Open Water and Estuarine	-	3.29 ha (65.41%)	 Coordinates: -31.9806 115.821 Photograph: Facing South-East
Cleared Areas	Completely devoid of vegetation	-	0.89 ha (17.70%)	

6.1.2 Vegetation condition

The entire Survey Site has been cleared, with modifications carried out over time to the natural edge of the site, with artificial maritime structures bordering what would have historically been estuarine-based riparian shoreline and riverbank species or potentially *Banksia* and *Melaleuca* and *Eucalypt* species. Therefore, the vegetation types were not assigned a vegetation condition as they are not representative of native vegetation.

6.1.3 Significant ecological communities

No EPBC or state listed TECs, or DBCA listed PECs were recorded within the Survey Site.

Vegetation recorded within the Survey Area does not meet the structural or compositional criteria to represent any of the TEC or PECs which have been identified within the desktop Study Area.

6.1.4 Flora diversity

A total of 16 vascular flora species were recorded in the Survey Site. A total of 10 of the flora recorded were native taxa, with the remaining six not considered to be locally native to the area and were classified as introduced. A species list and species by family type are presented in Appendix D.

6.1.5 Significant flora

No EPBC Act or DBCA BC Act listed flora were recorded within the Survey Site.

Likelihood of occurrence

A likelihood of occurrence assessment was conducted post-field survey for significant flora taxa identified in the desktop assessment (Appendix D). The assessment took into account previous records, habitat requirements, efficacy of the survey, intensity of the survey, flowering times and the cryptic nature of species.

The likelihood of occurrence assessment post-field survey concluded that no taxa identified by the desktop assessment are either known to occur or are likely to occur. This is due to a combination of known distribution, preferred habitat, visibility of the taxa during the field survey, and most significantly, the high level of disturbance and clearing throughout the Survey Site and its conversion to public infrastructure and recreational parkland.

6.1.6 Introduced flora

No observed flora species are listed as declared pest plants in WA under the BAM Act, or Weeds of National Significance (WoNS) (Australian Weeds 2012).

6.2 Fauna

6.2.1 Fauna habitat types

Five broad habitat types were identified within the two separate sections of the Matilda BaySurvey Site based on the predominant vegetation structure and geography. These habitats generally align with the vegetation community types (VTs) described in Table 21, and mapped from the concurrent flora and vegetation assessment. The fauna habitats tend to be simple in structure and vegetation diversity as they are all derived from relatively recent revegetation of trees, shrubs and wetlands plants comprising native and exotic species including *Eucalyptus* sp., *Melaleuca* sp., *Casuarina* sp*., Agonis flexuosa*, deciduous and evergreen trees. Consequently, the habitat types were largely artificial. The habitat types include:

- Shoreline Wetlands, Riparian and River
- Scattered trees
- Parkland over revegetation and re-planted vegetation
- Cleared areas.

- Open Water.

Fauna habitat are described in more detail in Table 21 and mapped in Figure 11C (Appendix A).

Table 18 *Recorded Fauna Habitat for Matilda Bay Survey Site*

Habitat Type	Habitat Description	Extent (ha) and proportion of Survey Areas (%)	Photograph
Shoreline Wetlands, Riparian and River (VT03)	This habitat consists of waterbodies and shoreline systems with varying levels of reeds and *Melaleuca* species, and introduced River Oak (*Casuarina cunninghamiana*), as well as small sections of bulrush *(juncus kraussii)*. Includes some native and exotic emergent aquatic plants. This habitat provides potential, temporary habitat for waterfowl and wading bird species such as black swans (*Cygnus atratus*), Pacific Black Ducks *(Anas superciliosus*) and locally common moorhens and swamphens. This habitat is not likely to be important for migratory birds due to lack of shallow open shoreline suitable as foraging habitat for waders, however they may occur occasionally as temporary foraging or resting-based visitation due to proximity to estuarine habitat of the Swan River. Furthermore, the highly degraded and altered state of the habitat type is unlikely to support wetland and shoreline mammalian species such as water rat (Rakali) (*Hydromys chrysogaster*). The small areas of marine system as a part of the extended open water sections of the Survey Areas may be used for brief foraging periods by locally common marine mammal species such as bottlenosed dolphins (*Tursiops aduncus*).	0.07 ha (1.39%)	 Coordinates: -31.9769 115.8219 Photograph: Facing North-East
Parkland over re-vegetation and re-planted vegetation (VT01)	This habitat consists of landscaped areas or open parklands, garden beds, lawns with sections of recent native replanting and re-vegetation, which consists of both native and exotic species. The majority of these areas are regularly maintained and therefore weed presence and significant hollows, logs, leaf litter or rocks and crevices are few in number. The nature of the highly modified habitat with the lack of additional microhabitats and understory suggests that native mammal and reptile suitability is low, with the exception of possible use for brief foraging activity by Quendas (*Isoodon fusciventer).* Avian fauna species may utilise the area as part of brief, occasional foraging and resting activity. This may include significant-listed fauna species including Osprey (*Pandion haliaetus*), Peregrine Falcon (*Falco peregrinus*) and the three endemic Black Cockatoo Species.	0.60 ha (11.93%)	 Coordinates: -31.978 115.8212 Photograph: Facing North

Habitat Type	Habitat Description	Extent (ha) and proportion of Survey Areas (%)	Photograph
Scattered Trees over Parkland (VT02)	This is a generally highly modified habitat containing isolated and small stands of native and introduced tree species over a virtually entirely cleared understorey. The trees present are located across mostly maintained lawns. Tree species identified include Paperbark species (Melaleuca sp.), Peppermint *(Agonis flexuosa*) and *Casuarina sp.* as well as isolated individual Jarrah, Marri and Tuart tree species. Sources of hollows and nesting opportunities are occasionally present but typically rare, with hollow logs, leaf litter and thick grass or bushes to provide additional microhabitat. The nature of the highly modified habitat with the lack of additional microhabitats and understory suggests that native mammal and reptile suitability is low, with the exception of possible use for brief foraging activity by Quendas (*Isoodon fusciventer).* Avian fauna species may utilise the area as part of brief, occasional foraging and resting activity. This may include significant-listed fauna species including Osprey (*Pandion haliaetus)* and the three endemic Black Cockatoo Species. Small numbers of isolated potential nesting size trees (DBH>500mm) were identified.	0.17 ha (3.38%)	 Coordinates: -31.9765 115.8219 Photograph: Facing West
Open Water	Open Water and Estuarine Habitat featuring shallow and mid-level water systems close to shore. These areas are typically disturbed from persistent boating activity and previous infrastructure development but may allow for occasional foraging use by locally common marine mammal species such as bottlenose dolphins (*Tursiops aduncus*).	3.29 ha (65.41%)	 Coordinates: -31.9806 115.821 Photograph: Facing South-East
Cleared Areas	Unmapped areas that include roads, cleared construction areas and lawn areas. These areas had little or no habitat value for fauna including significant species, but may occasionally be used by various	0.89 ha (17.69%)	

Habitat Type	Habitat Description	Extent (ha) and proportion of Survey Areas (%)	Photograph
	avian fauna species for temporary perching and resting activity given the proximity to open water bodies.		

6.2.2 Fauna diversity

The field survey recorded a total of 11 bird species, with no mammals, reptiles, fish or amphibian species recorded. This represents a small proportion of the total number of vertebrates that are likely or known to occur in the study area, based on desktop databases searches and assessments. Two species were introduced species, these being the Rainbow Lorikeet (*Trichoglossus moluccanus*) and the Long-billed Corella (*Cacatua tenuirostris*). The full species list is provided in Appendix E.

All of the fauna species identified are common, widespread species known to utilise urban habitat, modified wetlands, coastal shorelines and converted recreational parklands.

6.2.3 Significant fauna

During the field survey, no significant species were recorded. A further nine significant species, which are listed in Table 22, are likely to occur based on local occurrence and habitat availability. Of these nine species, five were assessed as being likely to occur, with a further four species assessed as possibly occurring.

Other significant fauna species may include migratory birds that have been recorded locally due to the proximity of the Survey Site to the estuarine habitat of the Swan River. However, these species are likely to be infrequent visitors from a purely fly-over activity basis, based on the small area size, highly cleared and altered state of the Survey Site. The Survey Site represents very low habitat value for these migratory species and they have therefore not been considered further in this assessment.

Table 19 Significant Fauna Species across Matilda Bay Survey Site

Common Name	Species Name	Status Listing EPBC Act	Status Listing DBCA BC Act	Likelihood
Baudin's Black Cockatoo	*Zanda baudinii*	EN	EN	**Likely.**
Carnaby's Black Cockatoo	*Zanda latirostris*	EN	EN	**Likely.**
Forest Red-tailed Black Cockatoo	*Calyptorhynchus banksii naso*	VU	VU	**Likely.**
Peregrine Falcon	*Falco peregrinus*	-	OS	**Likely.**
Blue-billed duck	*Oxyura australis*	-	P4	**Possible.**
Osprey	*Pandion haliaetus*	MI	MI	**Likely.**
Caspian Tern	*Hydroprogne caspia*	MI	MI	**Possible.**
Crested Tern	*Thalasseus bergii*	MI	MI	**Possible.**
Quenda	*Isoodon fusciventer*	-	P4	**Possible.**

Peregrine Falcon (*Falco peregrinus*)

The Peregrine Falcon is listed by the DBCA as otherwise in need of special protection under section 18 of the BC Act. It is uncommon but wide ranging across Australia from woodlands to open grasslands and coastal cliffs, and occasionally in desert regions. It feeds almost entirely on other birds, although it occasionally eats rabbits and other moderate sized mammals, bats and reptiles. The Peregrine Falcon is very territorial during the breeding season, the male courting the female with an impressive display of aerobatics (DEE 2019b, Morcombe 2004). Nest sites include tall trees, cliffs, and elevated artificial structures that provide a secluded and secure platform.

This species was not recorded during the survey and no nest sites were recorded. However, the species has been recorded as utilising urbanised areas along the Swan River and Swan Coastal Plain region, including coastal environments. Therefore, the species may possibly utilise the Survey Site at least on an occasional basis for perching and resting periods or as part of fly-over activity.

Baudin’s Cockatoo (*Zanda baudinii*)

The Baudin’s Cockatoo is listed as Endangered under the EPBC Act and BC Act. This species is endemic to the south-west of WA. The range of Baudin's Cockatoo varies considerably between the breeding and non-breeding seasons. During the breeding season (from October to January), the species nests in isolated pockets of the far south-west of WA within Jarrah, Marri and Karri forests which receive an average of 750 mm of rainfall annually. In addition to the south-west, there is an isolated patch of known breeding recorded at Perth Hills, east of Armadale (Johnstone & Storr 1998, Johnstone & Kirkby 2008).

Breeding generally occurs in woodland or forest but may also occur in former woodland or forest now present as isolated trees withing partially cleared parkland or farmland. Nesting occurs in hollows of live or dead Karri, Marri, Wandoo and Tuart (*Eucalyptus gomphocephala*) trees (DSEWPaC 2012). During the breeding season feeding primarily occurs in native vegetation, particularly Marri (DSEWPaC 2012). The range then expands during the non-breeding season (from February) as flocks disperse to forage more widely, congregating on the central and northern parts of the Darling plateau, as far as Mundaring and Gidgegannup (DSEWPaC 2012; Saunders 1974 & 1979).

No birds were observed or recorded during the survey, no evidence of foraging or feeding evidence was recorded within the Survey Site. However, the high number of confirmed recordings of the species throughout neighbouring locations to the current Survey Areas suggests that the species may temporarily utilise the site for perching, resting or temporary fly-over activity, albeit for brief periods. Furthermore, several potential nesting trees of sufficient DBH were recorded in scattered areas across the Survey Site, highlighting the potential for brief site utilisation. These specific individual trees are outlined in fauna habitat mapping in Appendix A. The utilisation for long-term, significant persistence with regards to feeding, foraging or breeding, however, is highly unlikely.

Carnaby’s Cockatoo (*Zanda latirostris*)

The Carnaby’s Cockatoo is listed as Endangered under the EPBC Act and BC Act. This species is endemic to the south-west of WA from near Cape Arid on the south coast through the eastern Wheat Belt and north to about Kalbarri. Carnaby’s Cockatoo nest in hollows of live or dead eucalyptus, primarily smooth-barked salmon gum (*Eucalyptus salmonophloia*) and Wandoo (*E. wandoo*) (Saunders 1979, 1982) though breeding has been reported in other Wheatbelt tree species and some tree species on the Swan Coastal Plain and Jarrah forest (Saunders 1979, 1982, Storr 1991, Johnstone & Storr 1998).

Success in breeding is dependent on sufficient high quality foraging habitat located in proximity of nesting and is nominally a radius of up to 12km of nesting sites (Saunders 1979, 1982, Saunders and Ingram 1987). High quality foraging habitat includes Kwongan heathlands and Banksia woodlands having abundant Banksia species and other proteaceous plants.

No birds were observed or recorded during the survey, no evidence of foraging or feeding evidence was recorded within the Survey Site. However, the high number of confirmed recordings of the species throughout neighbouring locations to the current Survey Site suggests that the species may temporarily utilise the site for perching, resting or temporary fly-over activity, albeit for brief periods. Furthermore, several potential nesting trees of sufficient DBH were recorded in scattered areas across the Survey Site, highlighting the potential for brief site utilisation. These specific individual trees are outlined in fauna habitat mapping in Appendix A. The utilisation for long-term, significant persistence with regards to feeding, foraging or breeding, however, is highly unlikely.

Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)

The Forest Red-tailed Black Cockatoo inhabits the dense jarrah, karri, and marri forests receiving more than 600 mm annual average rainfall but also occurs in a range of other forest and woodland types, including Blackbutt (*E. patens*), Wandoo (*E. wandoo*), Tuart (*E. gomphocephala*), Albany Blackbutt (*E. staeri*), Yate (*E. cornuta*), and Flooded Gum (E. rudis) (DEE 2017). Habitats tend to have an understorey or snottygobble (*Persoonia* spp.), holly-leaved mirbelia (*Mirbelia dilatata*), and sheoak *(Allocasuarina fraseriana*). They are most common in the jarrah forest region of the northern Darling Range from Collie north to Mundaring and are very local throughout the lower south-west. They can be found on the Swan Coastal Plain, mainly in search of food the exotic white cedar (*Melia azedarach*). There are also several small, isolated populations in the eastern parts of its range (DAWE 2022).

No birds were observed or recorded during the survey, no evidence of foraging or feeding evidence was recorded within the Survey Site. However, the high number of confirmed recordings of the species throughout neighbouring locations to the current Survey Areas suggests that the species may temporarily utilise the site for perching, resting or temporary fly-over activity, albeit for brief periods. Furthermore, several potential nesting trees of sufficient diameter breast height (DBH) were recorded in scattered areas across the Survey Site, highlighting the potential for brief site utilisation. These specific individual trees are outlined in fauna habitat mapping in Appendix A. The utilisation for long-term, significant persistence with regards to feeding, foraging or breeding, however, is highly unlikely.

Caspian Tern (*Hydroprogne caspia*)

The Caspian Tern is a migratory coastal and oceanic specialised species member of the gull family Laridae and is easily distinguished by its significantly larger size (the largest of all tern species globally) and its significant and prominent, elongated red bill. The species is currently listed as Migratory and under the EPBC Act and DBCA BC Act. This species is mostly associated with sheltered coasts such as harbours, bays, estuaries, etc. They can also be found in inland terrestrial wetlands (saline or fresh) or man-made bodies of water (lakes or reservoirs). (DCCEEW).

No recordings of the species were made during the survey, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within proximity to the current Survey Site and the additional close proximity of the Survey Site to open water sources and nearby perching and resting sites suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity.

Crested Tern (*Thalasseus bergii*)

The Crested Tern is a migratory coastal and oceanic specialised species member of the gull family Laridae and is easily distinguished by its yellow- coloured bill and extended, mobile crest arrangement for head feathers. The species is currently listed as Migratory and under the EPBC Act and DBCA BC Act.

This species inhabits tropical and subtropical coastlines, foraging in the shallow waters of lagoons, coral reefs, estuaries, bays, harbours and inlets, along sandy, rocky, coral or muddy shores, on rocky outcrops in open sea, in mangrove swamps and also far out to sea on open water. It shows a preference for nesting on offshore islands, low-lying coral reefs, sandy or rocky coastal islets, coastal spits, lagoon mudflats, and artificial islets in saltpans and sewage works within 3 km of the coast. (BirdLife International, 2023).

No recordings of the species were made during the survey, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within proximity to the current Survey Site and adjacent to open water sources and nearby perching and resting sites suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity.

Blue-billed Duck (*Oxyura australis)*

The blue-billed duck is a small Australian, almost entirely aquatic duck, with both the male and female growing to a length of 40 cm. The male has a slate-blue bill which changes to bright blue during the breeding season (Morcombe 2004). The species is listed as a Priority 4 (P4) significant species under the DBCA BC Act.

The blue-billed duck is endemic to Australia’s temperate regions, ranging from the southwest of Western Australia, extending to southern Queensland, through New South Wales and Victoria, to Tasmania. The species is readily seen on freshwater lakes and billabongs where deep fresh water is present (Morcombe 2004).

No recordings of the species were made during the survey, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within proximity to the current Survey Site and the additional close proximity of the Survey Areas to readily used lakes and remnant shores and banks of higher habitat value suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity.

Osprey (*Pandion haliaetus)*

The Osprey is a medium to large bird of prey within the sea-hawk genus group of the Accipitriformes order of larger raptor species, with specialised beak and talon properties for marine, coastal and inland freshwater predation and habitats. The species is currently listed as Migratory under the EPBC Act and the DBCA BC Act.

Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia. They require extensive areas of open fresh, brackish or saline water for foraging

(Marchant & Higgins 1993). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes. They exhibit a preference for coastal cliffs and elevated islands in some parts of their range, but may also occur on low sandy, muddy or rocky shores and over coral cays.

No recordings of the species were made during the survey of the Matilda Bay Survey Site, and long-term, suitable habitat for the species is not readily present. However, the number of DBCA recordings within close proximity to the current Survey Site and the additional close proximity of the Survey Site to readily used lakes and remnant shores and banks of higher habitat value suggest that the species may temporarily utilise the site for resting or minor foraging activity, or in a fly-over capacity. Furthermore, this species will readily utilise man-made infrastructure for short-term perching and even occasional nesting activity when bordering coastlines or the banks and shores of suitable marine and freshwater feeding areas. Therefore, the species is likely to occasionally utilise the current Survey Site for such purposes.

Quenda (*Isoodon fuscivente*r)

The quenda is a medium sized peramelid marsupial species reaching 1.5-2 kg in weight in mature adult males, with buff brown fur coating across the body, and with distinctive conical snout and small, protruding ears.

At present, the Quenda is listed by DBCA as a Priority 4 species. Its preferred habitat is low dense scrubby, often swampy, vegetation with dense cover up to one metre high. It also occurs in woodlands, and also known to utilise weedy low condition habitat adjacent higher quality bushland. The species often feeds in adjacent forest and woodland that is burnt on a regular basis and in areas of pasture and cropland close to dense cover (Van Dyck & Strahan 2008). The species will persist in semi-rural areas such as Swan Valley and occurs in some Perth urban areas where re-planted vegetation or small patches of remaining native vegetation allow linkages between suitable feeding and foraging sites.

No recordings of the species were made during the survey of the site and no digging evidence within the Survey Site was recorded. However, the known presence of the species in numerous neighbouring reserves and urban areas bordering the Survey Site, and the species' capacity to utilise urban gardens and partially replanted parklands despite the presence of human disturbance, suggests that the species may temporarily utilise the current Survey Site for occasional foraging or as a linkage-related pathway between more suitable feeding and foraging sites.

7. Discussion and Conclusions

7.1 Vegetation

A small number of basic vegetation types were recorded within the three survey sites across the Survey Area, varying from one to three vegetation types across the three sites, with the larger range of vegetation types and vegetation cover being observed at Matilda Bay.

Across the three survey sites, the dominant vegetation types consisted of cleared parkland, scattered native Eucalypt, Melaleuca, and Peppermint, Shoreline and Estuarine Riparian, native and exotic re-plantings, with remaining sections classified as open water and completely cleared. As a result, all three survey sites of the Survey Area are classified as Cleared Areas.

No EPBC or state listed TECs, or DBCA listed PECs were recorded within any of the three survey sites of the Survey Area. The absence of significant vegetation reflects the highly degraded, low ecological value of the overall Survey Area in its current state.

7.2 Flora

A total of 19 vascular flora species, were recorded across all three survey sites of the Survey Area, a total which included 10 native and seven introduced species. As the survey sites have previously been cleared and significantly altered, the flora of the area consisted both planted exotic and native species, with scattered, individual trees from various *Agonis* (Peppermint), *Melaleuca*, Eucalypt and Marri species present in small numbers at both the Matilda Bay site.

No EPBC Act or BC Act listed Threatened flora or DBCA-listed Priority Flora species were recorded within the three Survey Areas. Database desktop searches across various state and federal records identified a number of Threatened and Priority flora species previously recorded or likely to occur within the study area of a 10 km radius of all three survey sites, specifically 167 taxa of species and sub-species. However, all such identified species are considered either unlikely or highly unlikely to occur within any of the three survey sites post survey, due to historical disturbance, lack of suitable habitat, and distance of known records from the survey sites.

No recorded flora species were listed as declared pest plants in WA under the BAM Act, or Weeds of National Significance (WoNS) (Australian Weeds 2012).

7.3 Fauna

A small number of basic fauna habitat types were recorded across the three survey sites of the Survey Area, consisting of five basic habitat types (excluding Cleared Areas) to varying sizes and coverage across the three survey sites. These fauna types were classified as Scattered Trees, Parkland over revegetation and re-planted flora, Riparian Rivers and Shoreline Wetlands, Native and exotic mixed plantings and Open Water. These fauna habitats are likely to support a comparatively small range of regionally common terrestrial fauna species, primarily birds, within the habitats available.

The Open Water habitats are present across all three survey sites and are likely to provide brief foraging habitats for a range of locally common fish, crustacean and marine mammal species such as bottlenose dolphins, which were observed engaging in brief foraging behaviour at the Applecross site. However, specialised, environmentally significant marine and estuarine habitats are not present within these identified Open Water habitats, and their smaller size within the context of larger surrounding marine habitats suggests that these areas are not likely to support the persistence of large numbers of important marine fauna species. The majority of mapped areas of seagrass habitat is located outside of the survey site areas, with no evidence of mapped seagrass within the Applecross and Matilda Bay sites or within proximity to those Survey Sites. The Elizabeth Quay site contains small fragments of sparse-rated and medium-rated seagrass cover on the outer regions of these Open Water sections. These fragments represent a small percentage of the total seagrass recorded in surrounding marine and estuarine habitats and thus are not likely to be used for significant sheltering and foraging activity by various marine species that may occur in the areas on a temporary basis.

A total of three suitable DBH (DBH of greater than 500 mm) were identified at across the Matilda Bay site as shown in Figure12C.. (Appendix A). Suitable DBH trees have the potential to support black cockatoo breeding when in proximity to moderate to high quality feeding and foraging habitat. In the context of the present Survey Area, neither the Applecross or Elizabeth Quay site contain any foraging habitat or roosting habitat of noted quality or for breeding purposes (DCCEEW, 2017). The small number of isolated suitable DBH trees at the Matilda Bay site may provide small sources of temporary roosting and foraging, albeit of low quality rating. However, given that no hollows were observed and that there are numerous recordings of confirmed roosting and higher quality foraging habitat in surrounding areas of all three survey sites, these recorded trees are not likely to provide high quality foraging or roosting habitat for any of the three black cockatoo species to persist in numbers or with consistent visitation.

From an assessment of potentially significant trees that were deemed to be of importance in terms of size, significance to native fauna use and overall importance to the Survey Site, there were no significant trees observed at either the Applecross site or the Elizabeth Quay site. When including the suitable DBH trees in the assessment, a total of seven potentially significant tree groupings were identified and recorded across the remaining two survey sites, with all seven at Matilda Bay. The majority of these trees were isolated individuals with a small number of small groupings of three to four. Most of these trees were also native species of older ages, size and condition compared to other surrounding flora species observed, with each of them offering potential foraging, temporary resting and nesting habitat for locally common bird species, as well as the identified black cockatoo trees offering the potential for lower value foraging and feeding and temporary resting habitat. The details of each group of potentially significant trees are provided in table format in Appendix D. It is noted that while other trees of smaller size and condition were observed at the Matilda Bay site, these were not deemed to have a significant size or condition to be assessed as of significance to each survey site as a source of fauna utilisation when compared to those identified and highlighted trees.

Database desktop searches across various state and federal records have identified a significant number of Threatened and Priority fauna species previously recorded or likely to occur within the Study Area, specifically 94 taxa of species and sub-species. However, such previous records were not located within the three survey sites themselves with great frequency and were concentrated within neighbouring areas of higher habitat value or established conservation reserves and parks.

Field surveys across all three survey sites recorded small numbers of predominantly locally common bird species, ranging from as few as four species at the Elizabeth Quay site to 13 species at the Matilda Bay site. No EPBC Act or BC Act listed Threatened fauna or DBCA-listed Priority fauna were recorded. While the majority of the previously identified significant species from desktop assessment were assessed as unlikely to occur, a small number of species across the four survey sites were deemed likely to occur or possibly occurring, ranging from eight species at the Elizabeth Quay and Applecross sites, to nine species at the Matilda Bay site. There were higher numbers of such species at Matilda Bay recorded as being likely to occur as opposed to possibly occurring. This is due to the higher density of re-planted native and exotic vegetation and scattered tree vegetation cover and the presence of small clusters of scattered existing trees. This may allow for species such as Osprey and Quenda to utilise this site on a more frequent basis for temporary resting or foraging activity or as a means of navigating between neighbouring habitats of higher quality. In comparison, both the Applecross and Elizabeth Quay sites are less likely to contain habitat of benefit to such significant species due to the very poor quality of the habitats present, and thus are most likely to be utilised for temporary resting behaviour by locally common sea-birds and waterfowl.

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Appendices

Appendix A

Figures

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Figure 3	*Wetlands*
Figure 4	*Metropolitan Region Scheme*
Figure 5	*Conservation Reserves*
Figure 6	*Environmentally Sensitive Areas*
Figure 7	*Significant ecological communities*
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Figure 9	*Black Cockatoo Breeding and Roosting Sites*
Figure 10	*Vegetation Types*
Figure 11	*Fauna Habitat*
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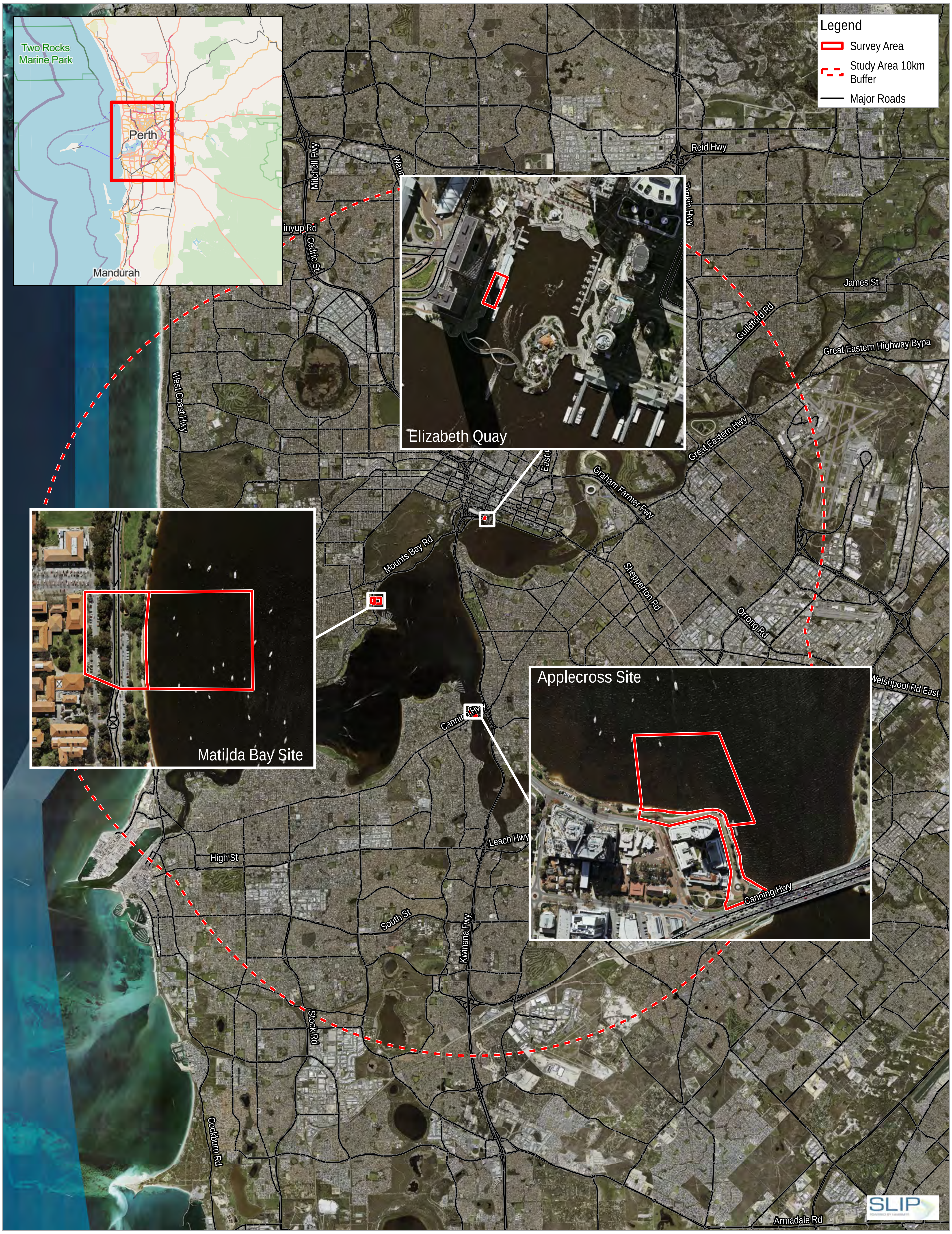
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Survey Area
Study Area 10km Buffer
Major Roads
Two Rocks Marine Park
Perth
Mandurah
Elizabeth Quay
Matilda Bay Site
Applecross Site
Reid Hwy
Mitchell Fwy
Tonkin Hwy
Cedric St
James St
Guildford Rd
Great Eastern Highway Bypass
Great Eastern Hwy
West Coast Hwy
Graham Farmer Fwy
Mounts Bay Rd
Shepperton Rd
Orrong Rd
Welshpool Rd East
Canning Hwy
Leach Hwy
High St
South St
Kwinana Fwy
Stock Rd
Cockburn Rd
Armadale Rd
SLIP

Paper Size ISO A3
at Scale: 1:100,000

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Project No. 12658767
Revision No. 0
Date 16/05/2025

Project Location

FIGURE 1

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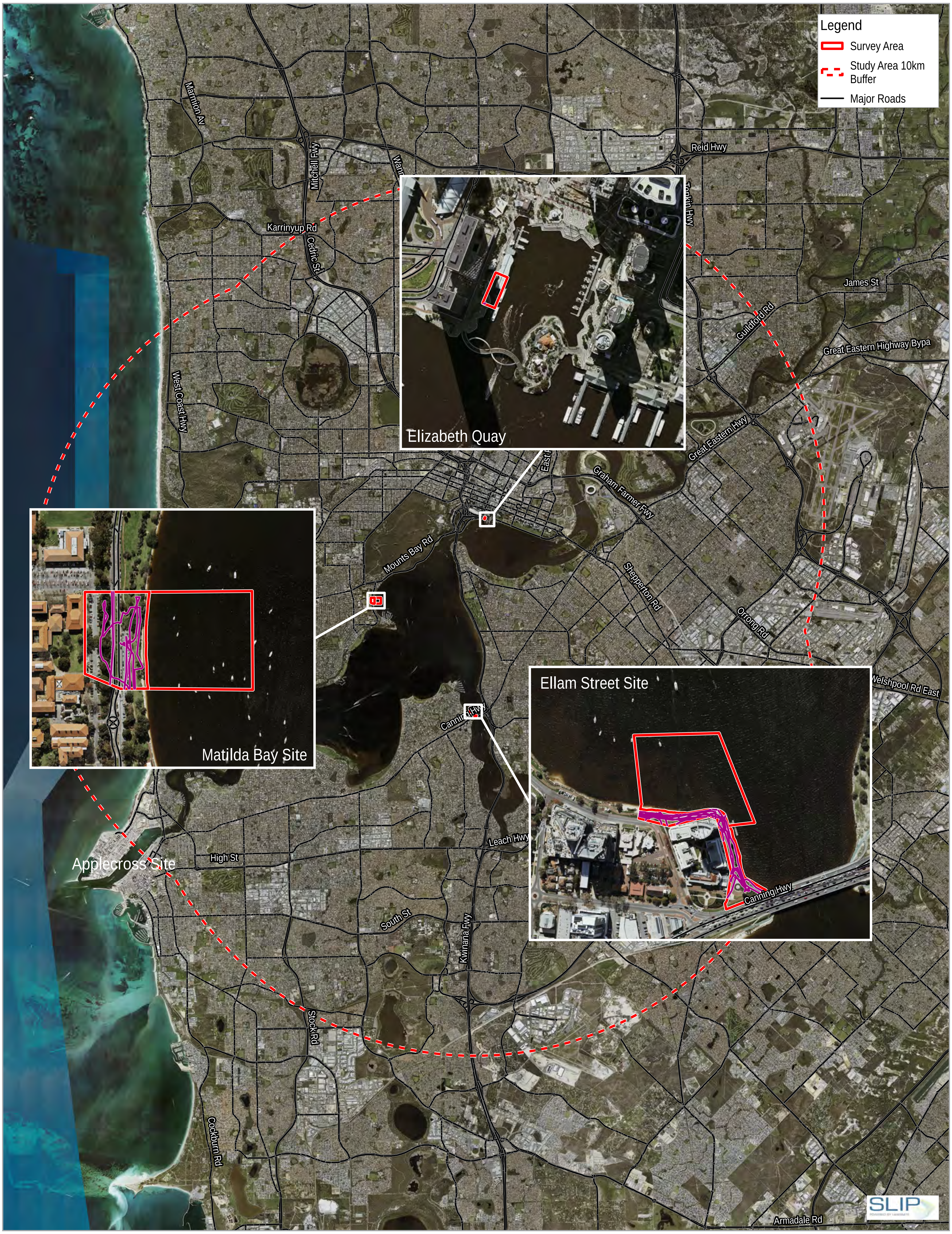
Data source: WANow: Landgate / SLIP
OpenStreetMap: Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri
World Hillshade: Sources: Esri, Maxar, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user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Survey Area
Study Area 10km Buffer
Major Roads
Marmion Av
Mitchell Fwy
Karrinyup Rd
Cedric St
Reid Hwy
Tonkin Hwy
James St
Guildford Rd
Great Eastern Highway Bypa
West Coast Hwy
Great Eastern Hwy
Graham Farmer Fwy
Elizabeth Quay
Mounts Bay Rd
Shepperton Rd
Orrong Rd
Welshpool Rd East
Ellam Street Site
Matilda Bay Site
Canning Hwy
Leach Hwy
High St
Applecross Site
South St
Kwinana Fwy
Stock Rd
Cockburn Rd
Armadale Rd

Paper Size ISO A3
at Scale: 1:100,000

0 0.5 1 1.5 2
Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Project No.	12658767
Revision No.	0
Date	16/05/2025

Survey Effort

FIGURE 2

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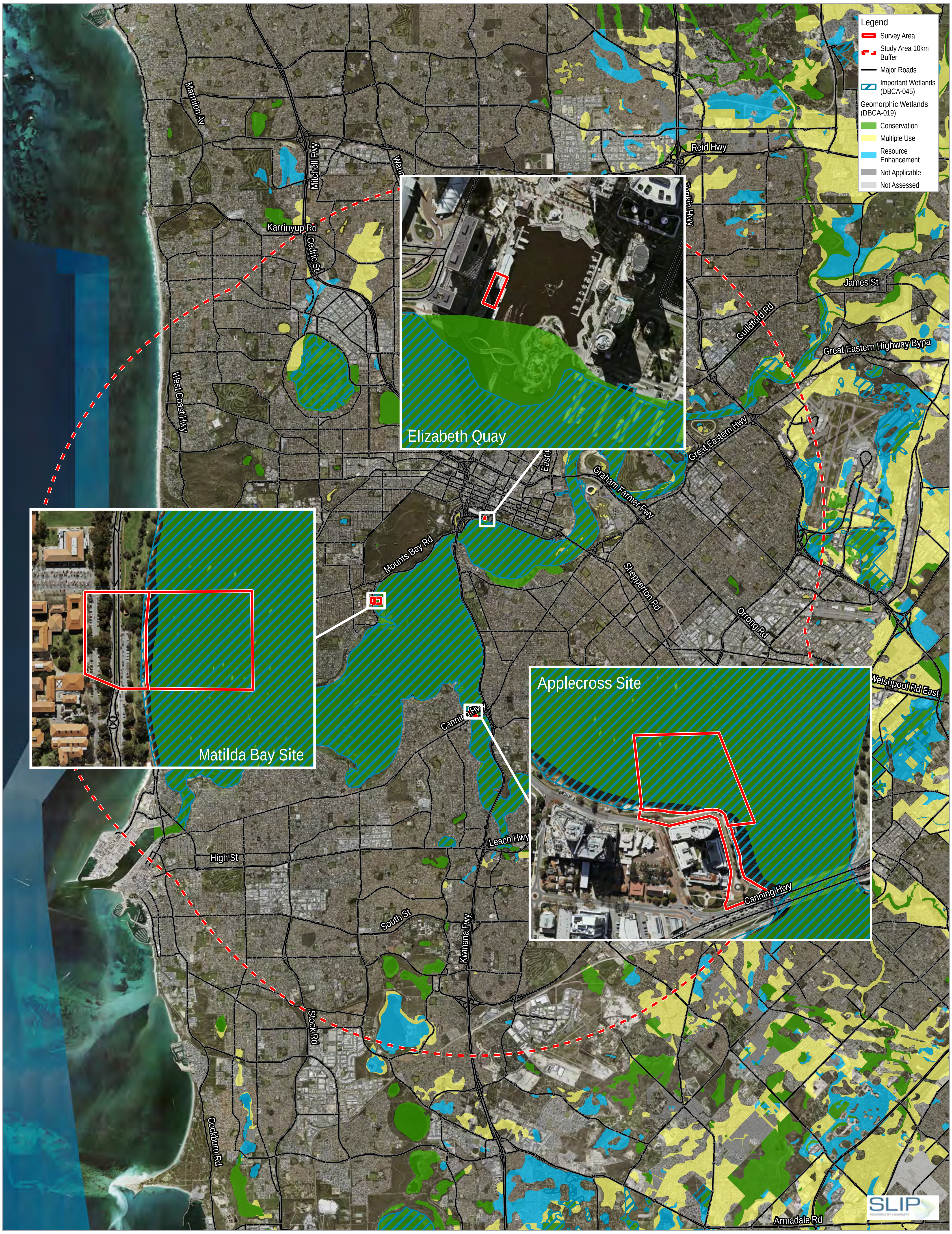
Legend
Survey Area
Study Area 10km Buffer
Major Roads
Important Wetlands (DBCA-045)
Geomorphic Wetlands (DBCA-019)
Conservation
Multiple Use
Resource Enhancement
Not Applicable
Not Assessed
Elizabeth Quay
Matilda Bay Site
Applecross Site
Marmion Av
Mitchell Fwy
Karrinyup Rd
Cedric St
West Coast Hwy
Reid Hwy
Tonkin Hwy
James St
Guildford Rd
Great Eastern Highway Bypa
Great Eastern Hwy
Graham Farmer Fwy
East
Mounts Bay Rd
Shepperton Rd
Orrong Rd
Welshpool Rd East
Canning Hwy
Leach Hwy
High St
South St
Kwinana Fwy
Stock Rd
Cockburn Rd
Armadale Rd
SLIP

Paper Size ISO A3
at Scale: 1:100,000

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Kilometres

N

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

GHD

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Wetlands

Project No. 12658767
Revision No. 0
Date 16/05/2025

FIGURE 3

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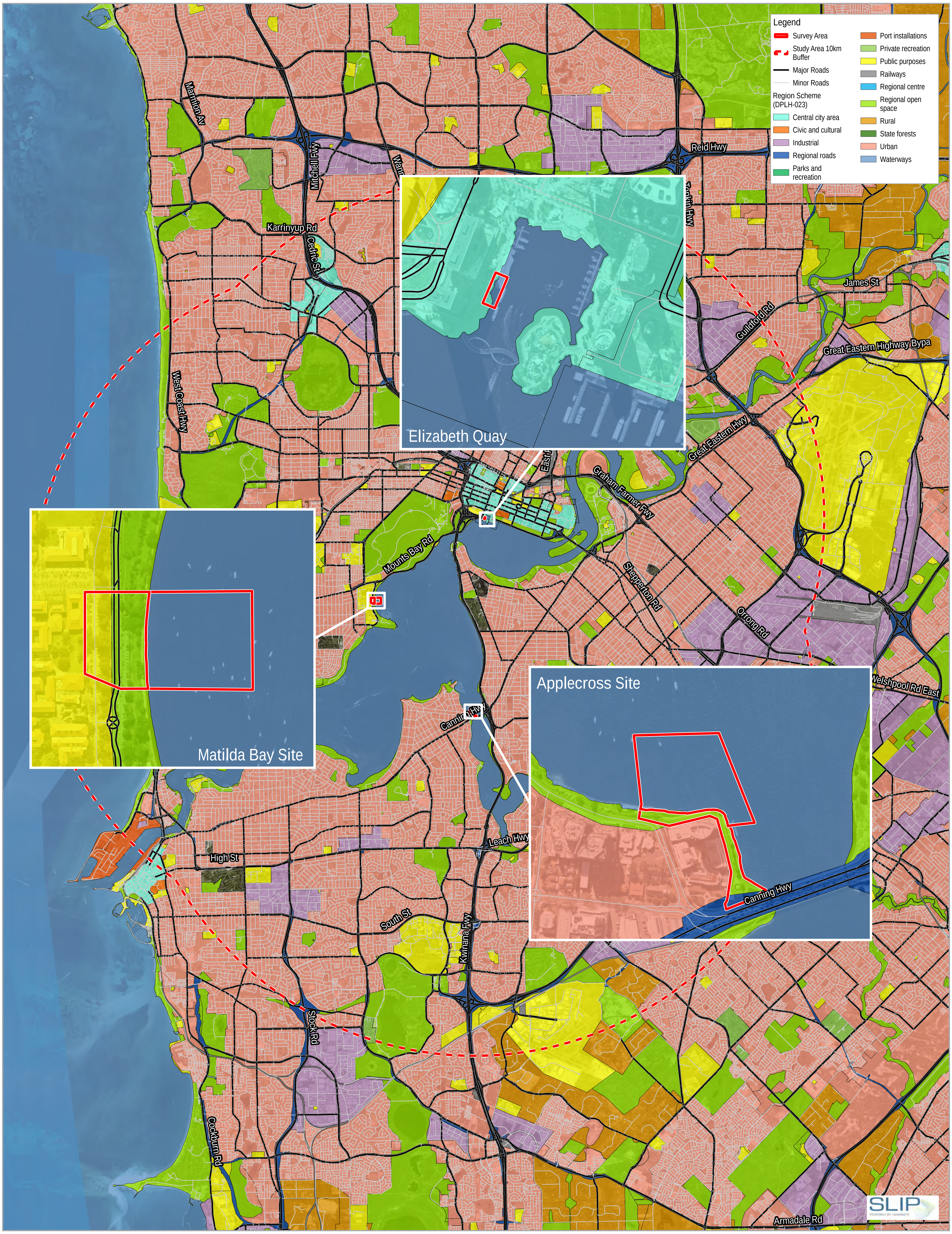
Legend
Survey Area
Study Area 10km Buffer
Major Roads
Minor Roads
Region Scheme (DPLH-023)
Central city area
Civic and cultural
Industrial
Regional roads
Parks and recreation
Port installations
Private recreation
Public purposes
Railways
Regional centre
Regional open space
Rural
State forests
Urban
Waterways
Elizabeth Quay
Matilda Bay Site
Applecross Site
Marmion Av
Mitchell Fwy
Reid Hwy
Tonkin Hwy
Karrinyup Rd
Cedric St
James St
Guildford Rd
Great Eastern Highway Bypa
West Coast Hwy
Great Eastern Hwy
Graham Farmer Fwy
Mounts Bay Rd
Shepperton Rd
Orrong Rd
Welshpool Rd East
Canning Hwy
Leach Hwy
High St
South St
Kwinana Fwy
Stock Rd
Cockburn Rd
Armadale Rd
SLIP

Paper Size ISO A3
at Scale: 1:100,000

0 0.5 1 1.5 2
Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Project No.	12658767
Revision No.	0
Date	16/05/2025

Metropolitan Region Scheme

FIGURE 4

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_004_MetropolitanRegionScheme_Rev0
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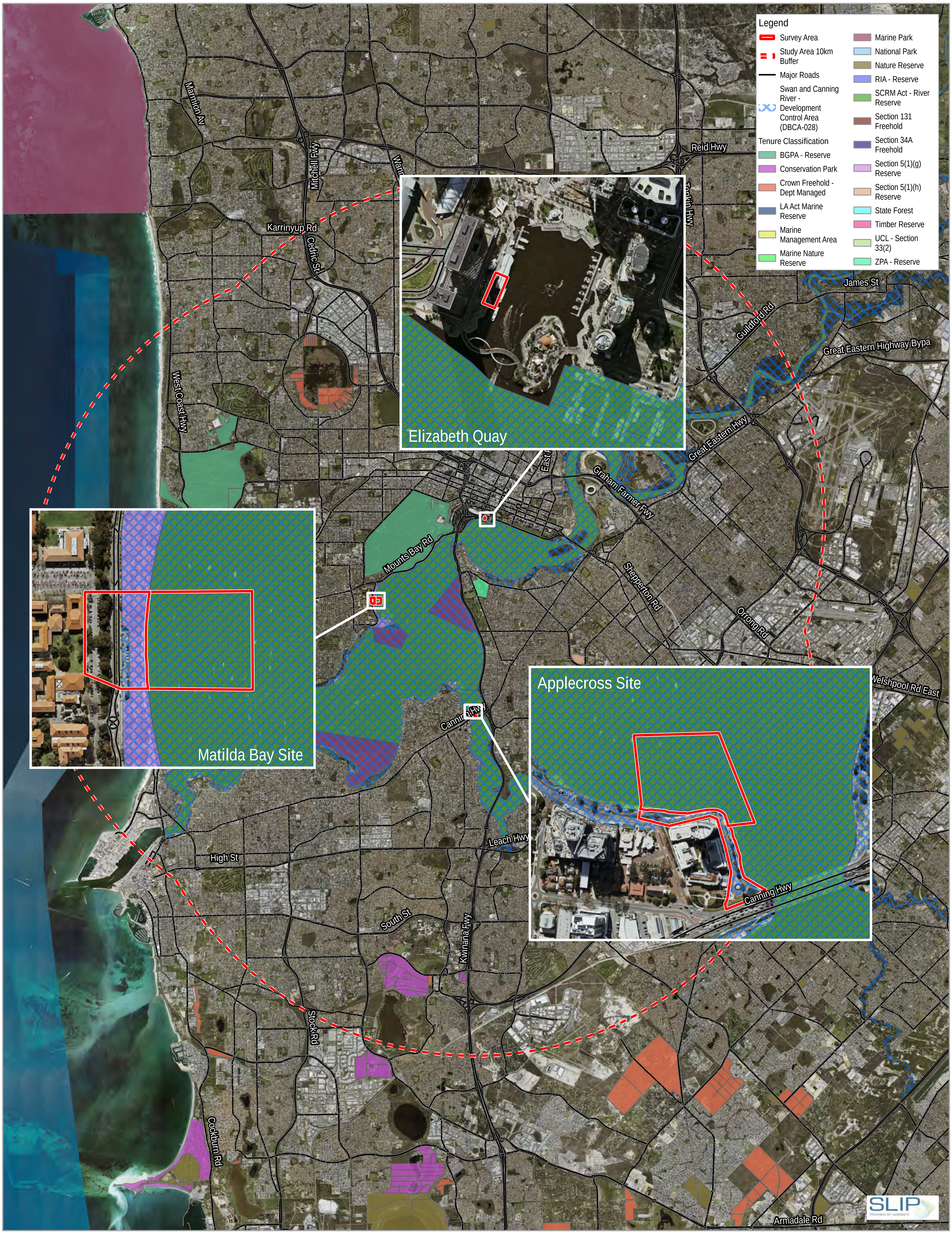
Legend
Survey Area
Study Area 10km Buffer
Major Roads
Swan and Canning River - Development Control Area (DBCA-028)
Tenure Classification
BGPA - Reserve
Conservation Park
Crown Freehold - Dept Managed
LA Act Marine Reserve
Marine Management Area
Marine Nature Reserve
Marine Park
National Park
Nature Reserve
RIA - Reserve
SCRM Act - River Reserve
Section 131 Freehold
Section 34A Freehold
Section 5(1)(g) Reserve
Section 5(1)(h) Reserve
State Forest
Timber Reserve
UCL - Section 33(2)
ZPA - Reserve
Elizabeth Quay
Matilda Bay Site
Applecross Site
Marmion Av
Mitchell Fwy
Karrinyup Rd
Cedric St
West Coast Hwy
Reid Hwy
Tonkin Hwy
James St
Guildford Rd
Great Eastern Highway Bypa
Great Eastern Hwy
Graham Farmer Fwy
Mounts Bay Rd
Shepperton Rd
Orrong Rd
Welshpool Rd East
Canning Hwy
Leach Hwy
High St
South St
Kwinana Fwy
Stock Rd
Cockburn Rd
Armadale Rd
Paper Size ISO A3
at Scale: 1:100,000
0 0.5 1 1.5 2
Kilometres
N

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Project No. 12658767
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Date 16/05/2025

Conservation Reserves

FIGURE 5

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_005_ConservationReserves_Rev0
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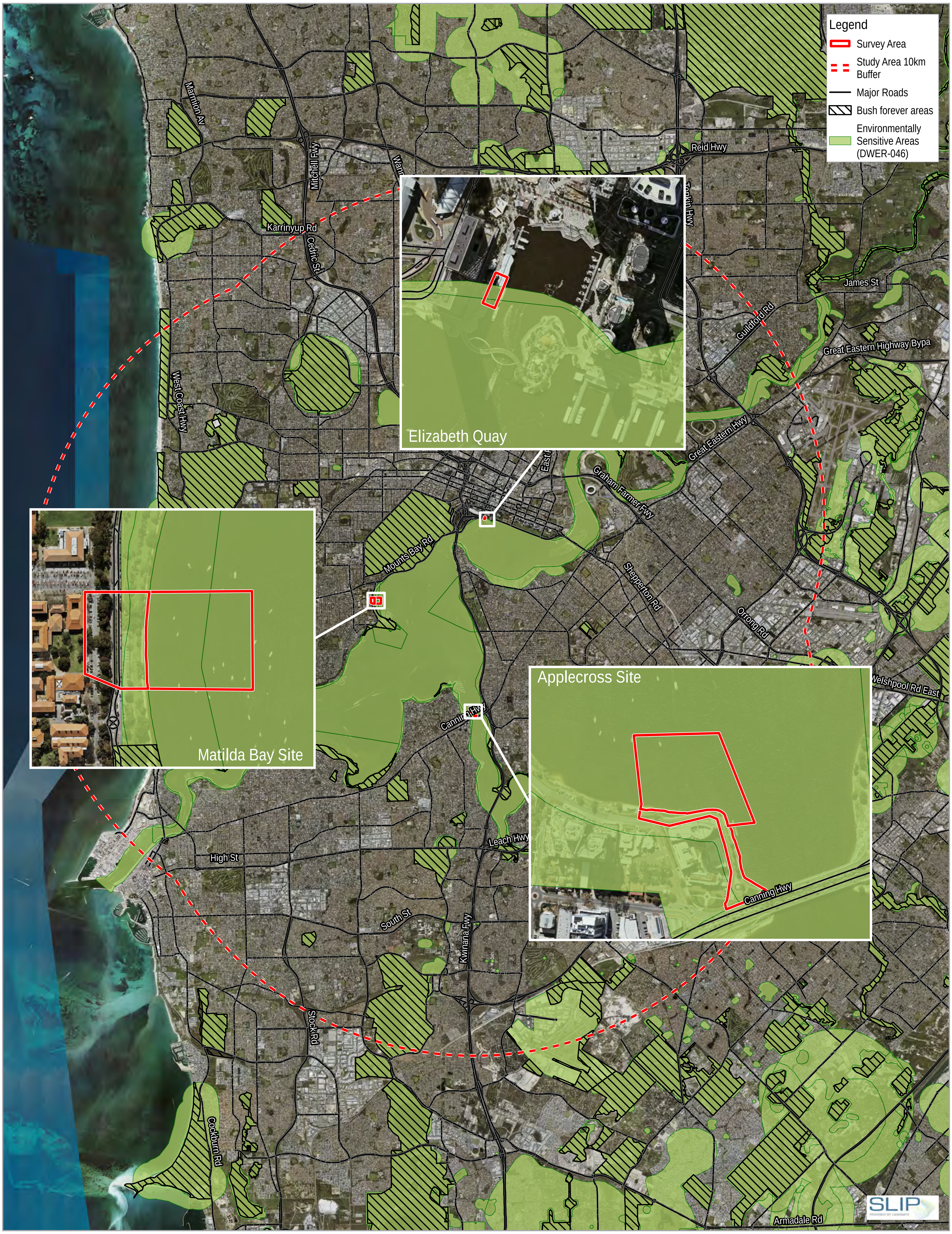
Legend
Survey Area
Study Area 10km Buffer
Major Roads
Bush forever areas
Environmentally Sensitive Areas (DWER-046)
Elizabeth Quay
Matilda Bay Site
Applecross Site
Marmion Av
Mitchell Fwy
Karrinyup Rd
Cedric St
West Coast Hwy
Reid Hwy
Tonkin Hwy
James St
Guildford Rd
Great Eastern Highway Bypa
Great Eastern Hwy
Graham Farmer Fwy
Mounts Bay Rd
Shepperton Rd
Orrong Rd
Welshpool Rd East
Canning Hwy
Leach Hwy
High St
South St
Kwinana Fwy
Stock Rd
Cockburn Rd
Armadale Rd
SLIP

Paper Size ISO A3
at Scale: 1:100,000

0 0.5 1 1.5 2
Kilometres
N

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Project No. 12658767
Revision No. 0
Date 16/05/2025

Environmentally Sensitive Areas

FIGURE 6

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_006_EnvironmentallySensitiveAreas_Rev0
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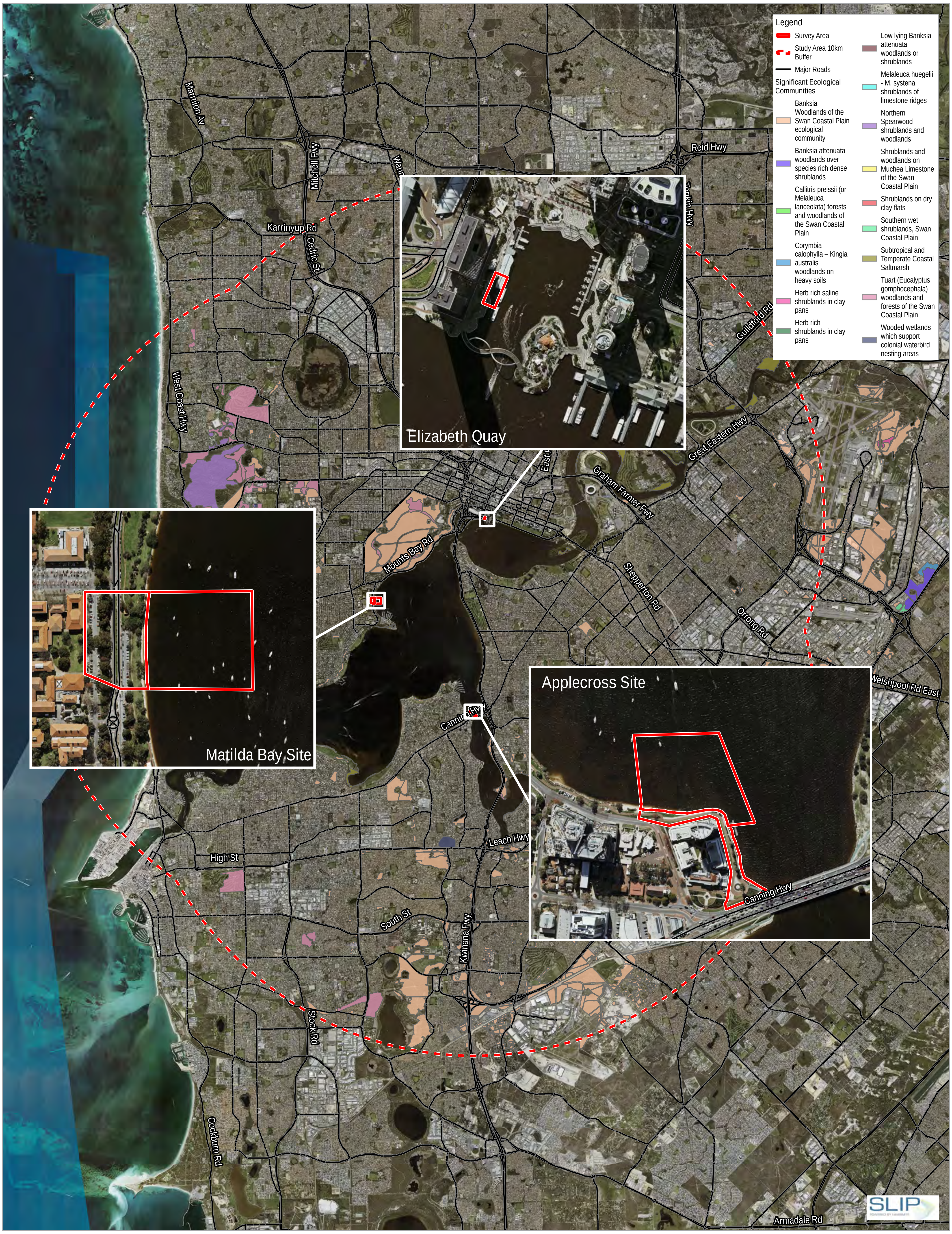

Legend
Survey Area
Study Area 10km Buffer
Major Roads
Significant Ecological Communities
Banksia Woodlands of the Swan Coastal Plain ecological community
Banksia attenuata woodlands over species rich dense shrublands
Callitris preissii (or Melaleuca lanceolata) forests and woodlands of the Swan Coastal Plain
Corymbia calophylla – Kingia australis woodlands on heavy soils
Herb rich saline shrublands in clay pans
Herb rich shrublands in clay pans
Low lying Banksia attenuata woodlands or shrublands
Melaleuca huegelii - M. systena shrublands of limestone ridges
Northern Spearwood shrublands and woodlands
Shrublands and woodlands on Muchea Limestone of the Swan Coastal Plain
Shrublands on dry clay flats
Southern wet shrublands, Swan Coastal Plain
Subtropical and Temperate Coastal Saltmarsh
Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain
Wooded wetlands which support colonial waterbird nesting areas
Elizabeth Quay
Matilda Bay Site
Applecross Site
Marmion Av
Mitchell Fwy
Karrinyup Rd
Cedric St
West Coast Hwy
Reid Hwy
Tonkin Hwy
Guildford Rd
Great Eastern Hwy
Graham Farmer Fwy
Mounts Bay Rd
Shepperton Rd
Orrong Rd
Welshpool Rd East
Canning Hwy
Leach Hwy
High St
South St
Kwinana Fwy
Stock Rd
Cockburn Rd
Armadale Rd
SLIP

Paper Size ISO A3
at Scale: 1:100,000

0 0.5 1 1.5 2
Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

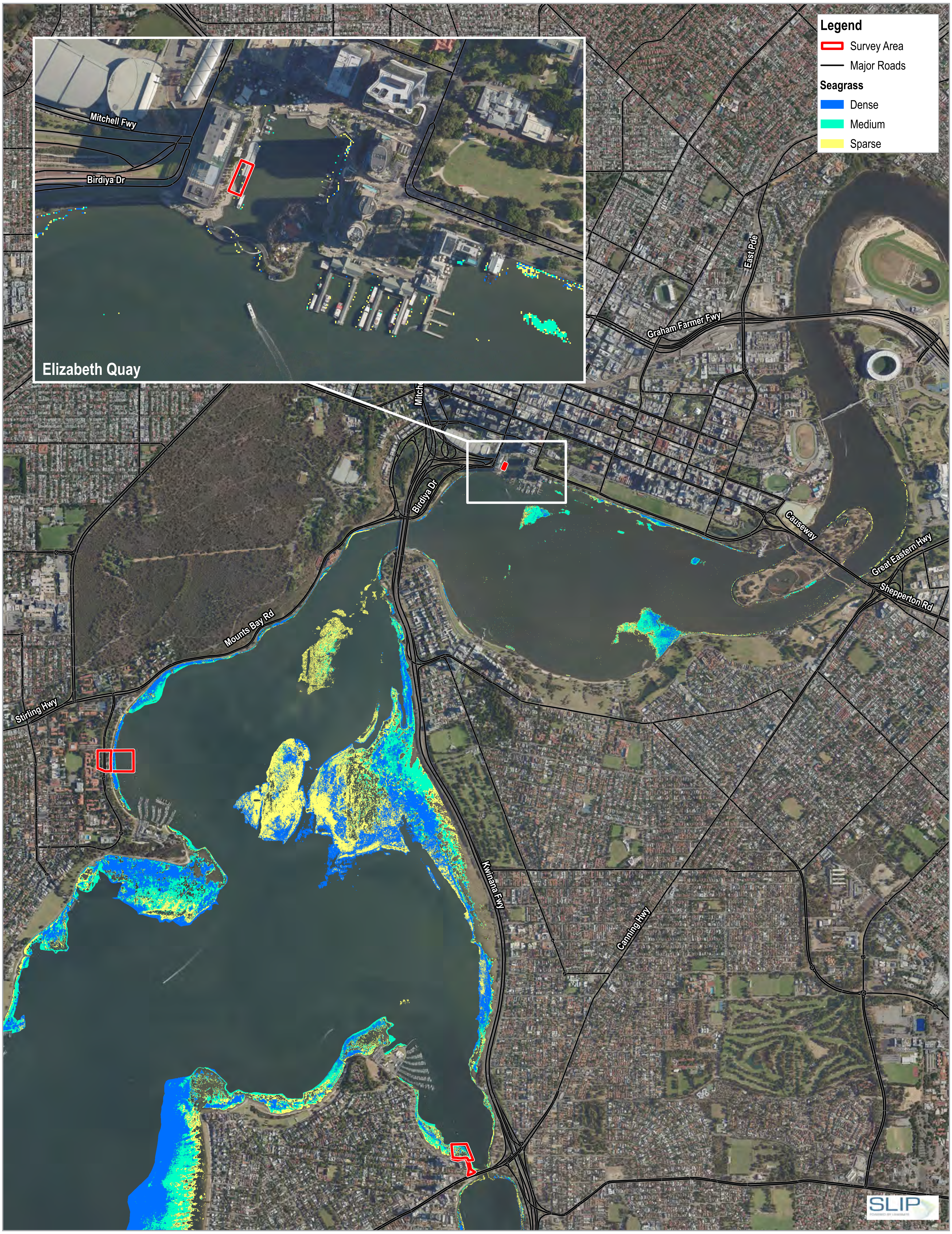
Project No. 12658767
Revision No. 0
Date 16/05/2025

Significant Ecological Communities

FIGURE 7

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_007_SignificantEcologicalCommunities_Rev0
Print date: 16 May 2025 - 16:05

Data source: WANow: Landgate / SLIP
World Hillshade: Sources: Esri, Maxar, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community


Legend
🟥 Survey Area
— Major Roads
Seagrass
🟦 Dense
🟩 Medium
🟨 Sparse
Elizabeth Quay
Mitchell Fwy
Birdiya Dr
East Pde
Graham Farmer Fwy
Causeway
Great Eastern Hwy
Shepperton Rd
Mounts Bay Rd
Stirling Hwy
Kwinana Fwy
Canning Hwy
SLIP

Paper Size ISO A3
at Scale: 1:28,000

0 0.5 1
Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Seagrass Mapping

Project No.	**12658767**
Revision No.	**1**
Date	**25/09/2025**

FIGURE 8

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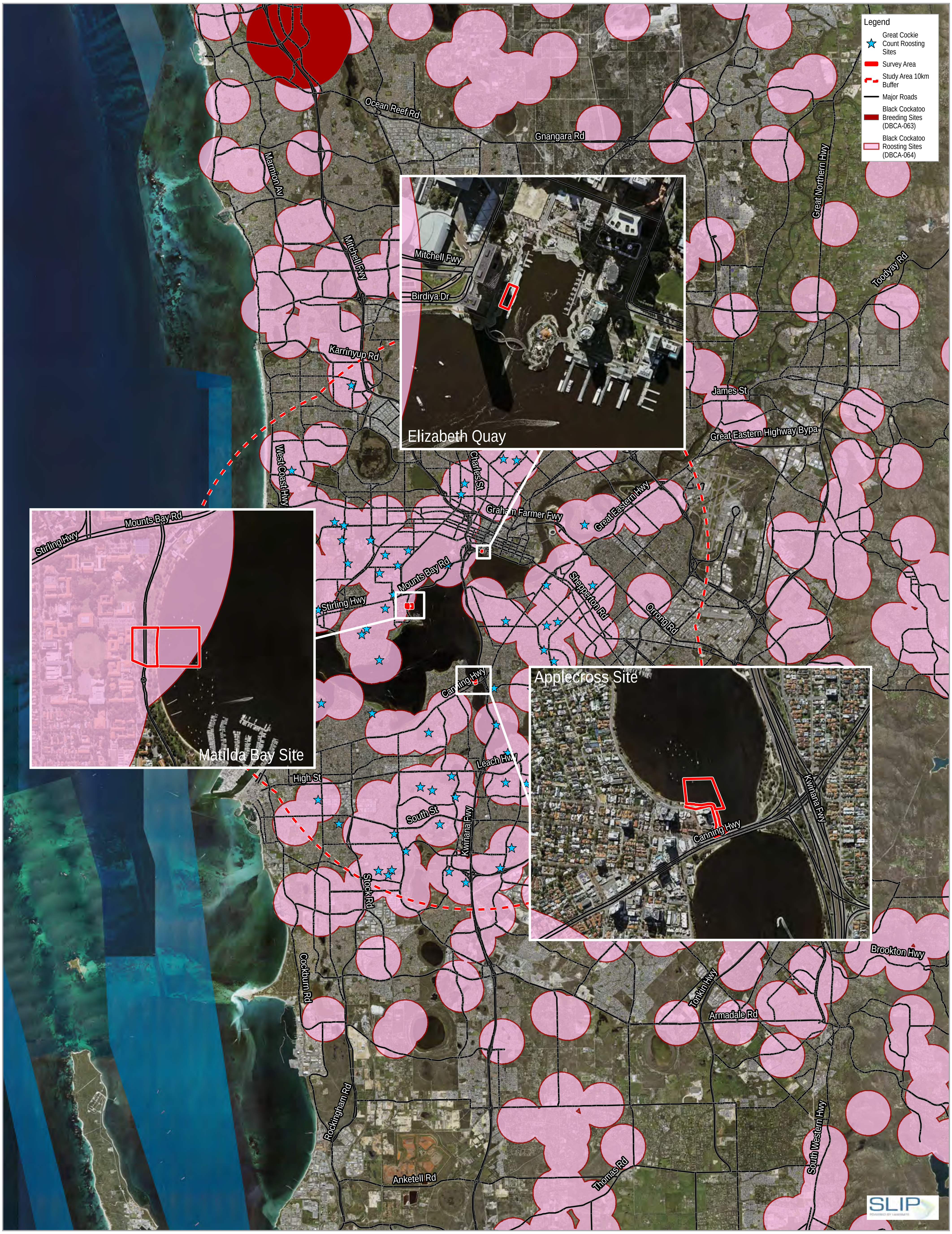
Legend
Great Cockie Count Roosting Sites
Survey Area
Study Area 10km Buffer
Major Roads
Black Cockatoo Breeding Sites (DBCA-063)
Black Cockatoo Roosting Sites (DBCA-064)
Ocean Reef Rd
Gnangara Rd
Marmion Av
Mitchell Fwy
Great Northern Hwy
Toodyay Rd
Karrinyup Rd
James St
Great Eastern Highway Bypass
West Coast Hwy
Charles St
Graham Farmer Fwy
Great Eastern Hwy
Mounts Bay Rd
Stirling Hwy
Shepperton Rd
Orrong Rd
Canning Hwy
Leach Hwy
High St
South St
Kwinana Fwy
Stock Rd
Cockburn Rd
Brookton Hwy
Tonkin Hwy
Armadale Rd
Rockingham Rd
Anketell Rd
Thomas Rd
South Western Hwy
Elizabeth Quay
Mitchell Fwy
Birdiya Dr
Matilda Bay Site
Mounts Bay Rd
Stirling Hwy
Applecross Site
Canning Hwy
Kwinana Fwy
SLIP

Paper Size ISO A3
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0 0.5 1 1.5 2
Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

GHD

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Black Cockatoos

Project No. 12658767
Revision No. 0
Date 16/05/2025

FIGURE 9

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_009_BlackCockatoos_Rev0
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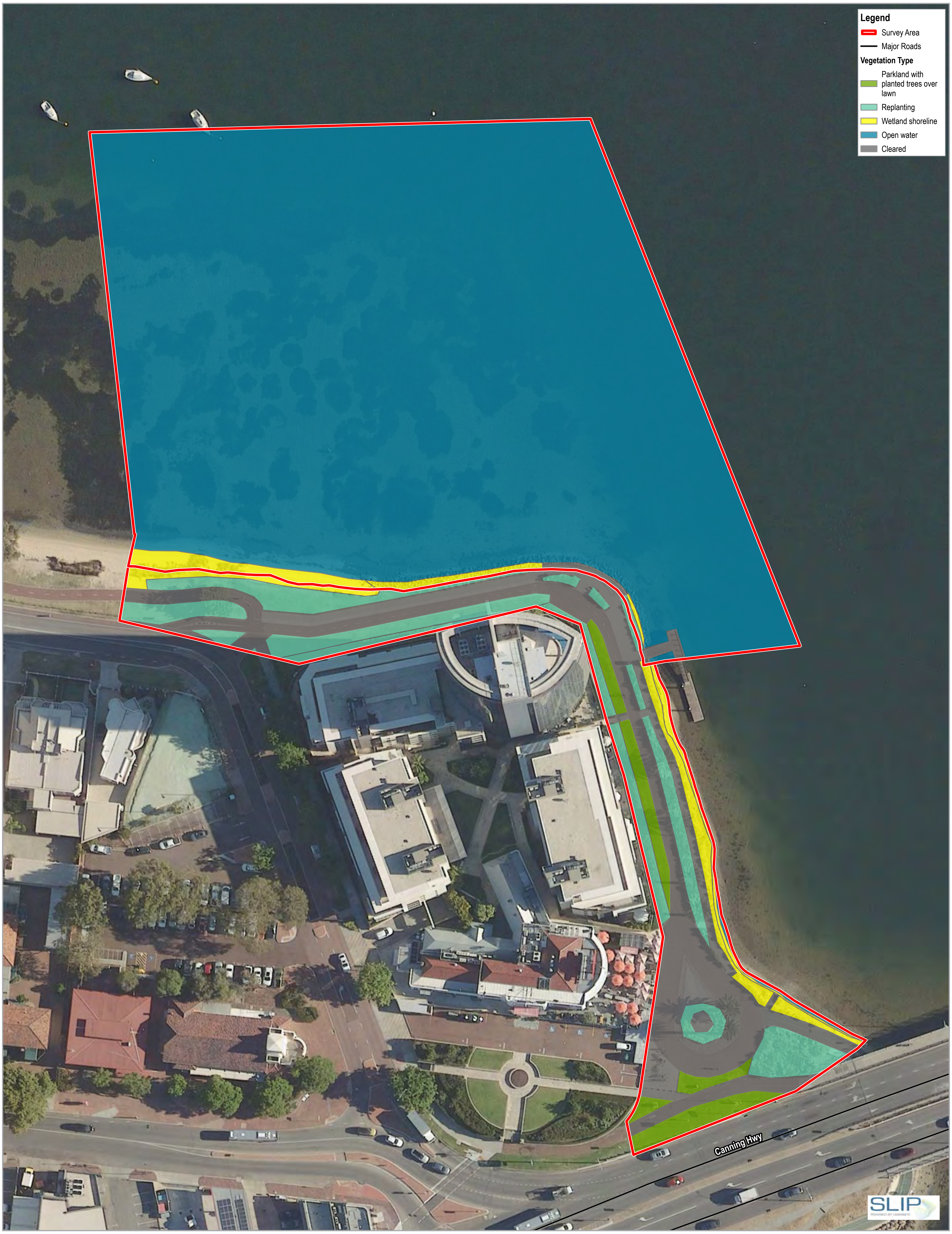
Data source: WANow: Landgate / SLIP
World Hillshade: Sources: Esri, Maxar, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community


Legend
Survey Area
Major Roads
Vegetation Type
Parkland with planted trees over lawn
Replanting
Wetland shoreline
Open water
Cleared
Canning Hwy
SLIP

Paper Size ISO A3

0 5 10 15 20

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Applecross Site
Vegetation Types

Project No. **12658767**
Revision No. **0**
Date **4/06/2025**

FIGURE 10A

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_010A_VegetationTypes_Rev0
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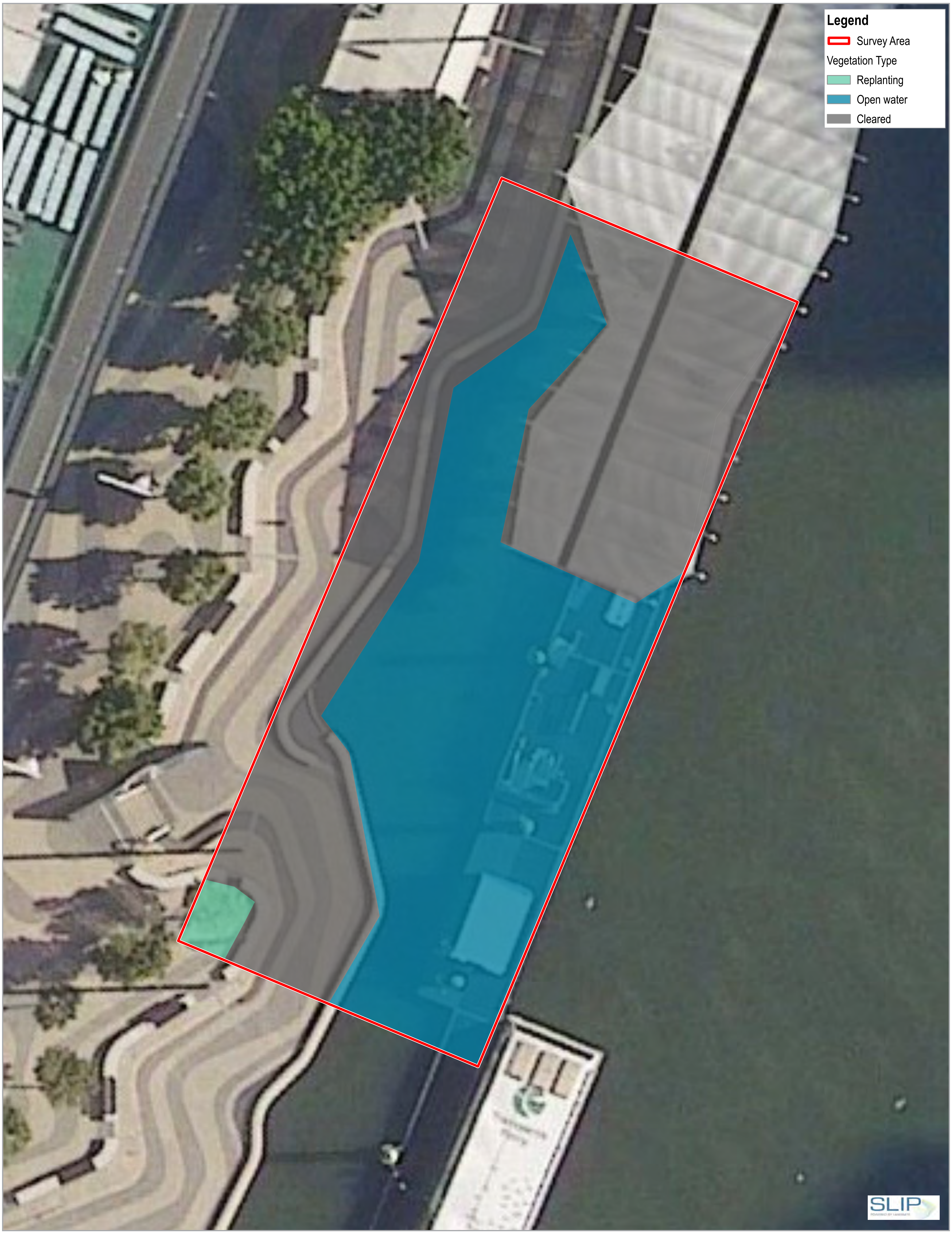

Paper Size ISO A3

0 1 2 3 4

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Elizabeth Quay Site Vegetation Types

Project No.	**12658767**
Revision No.	**0**
Date	**4/06/2025**

FIGURE 10B

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_010B_VegetationTypes_Rev0
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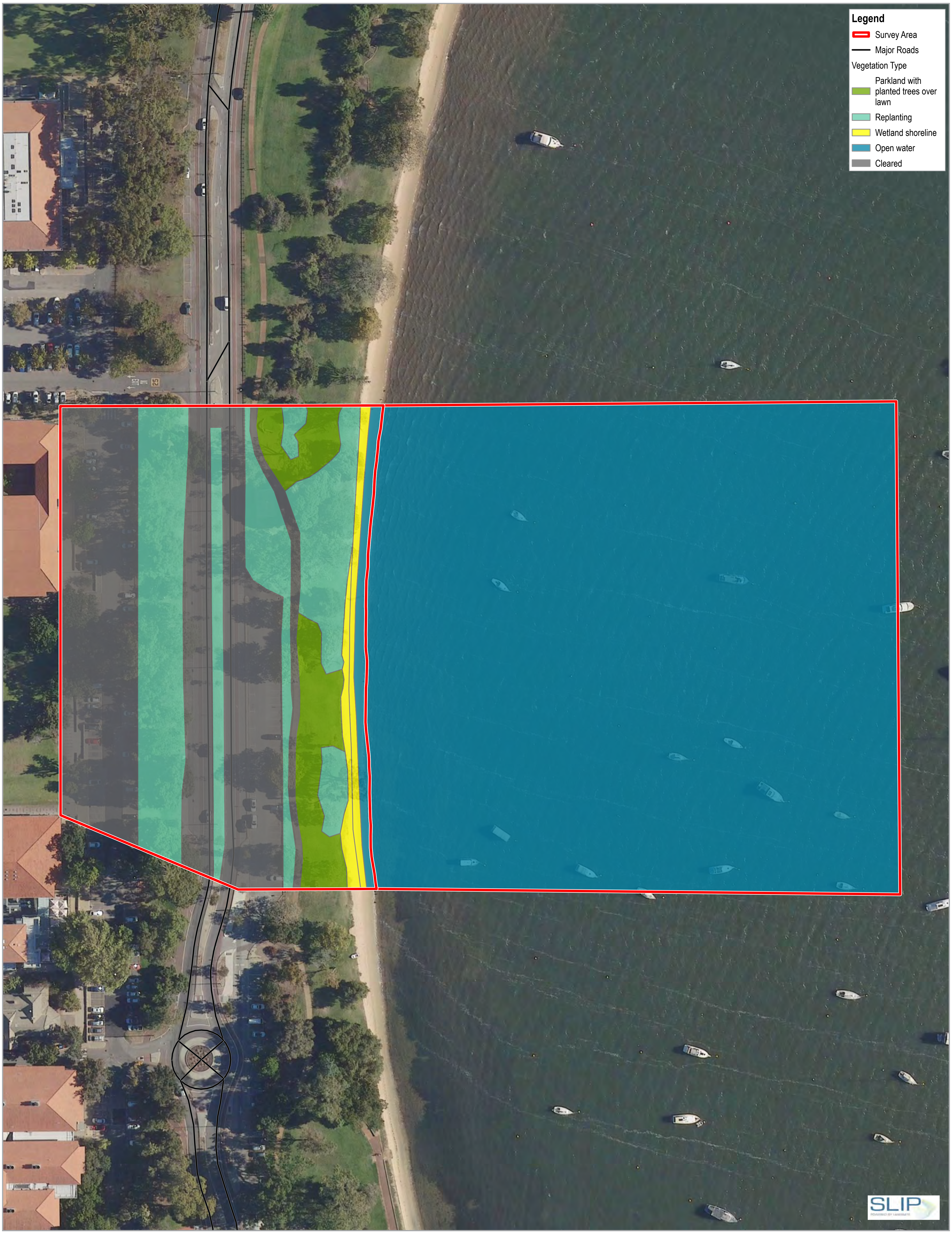
Legend
Survey Area
Major Roads
Vegetation Type
Parkland with planted trees over lawn
Replanting
Wetland shoreline
Open water
Cleared
SLIP

Paper Size ISO A3

0 5 10 15 20
Meters
N

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Matilda Bay Site Vegetation Types

Project No.	12658767
Revision No.	0
Date	4/06/2025

FIGURE 10C

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_010C_VegetationTypes_Rev0
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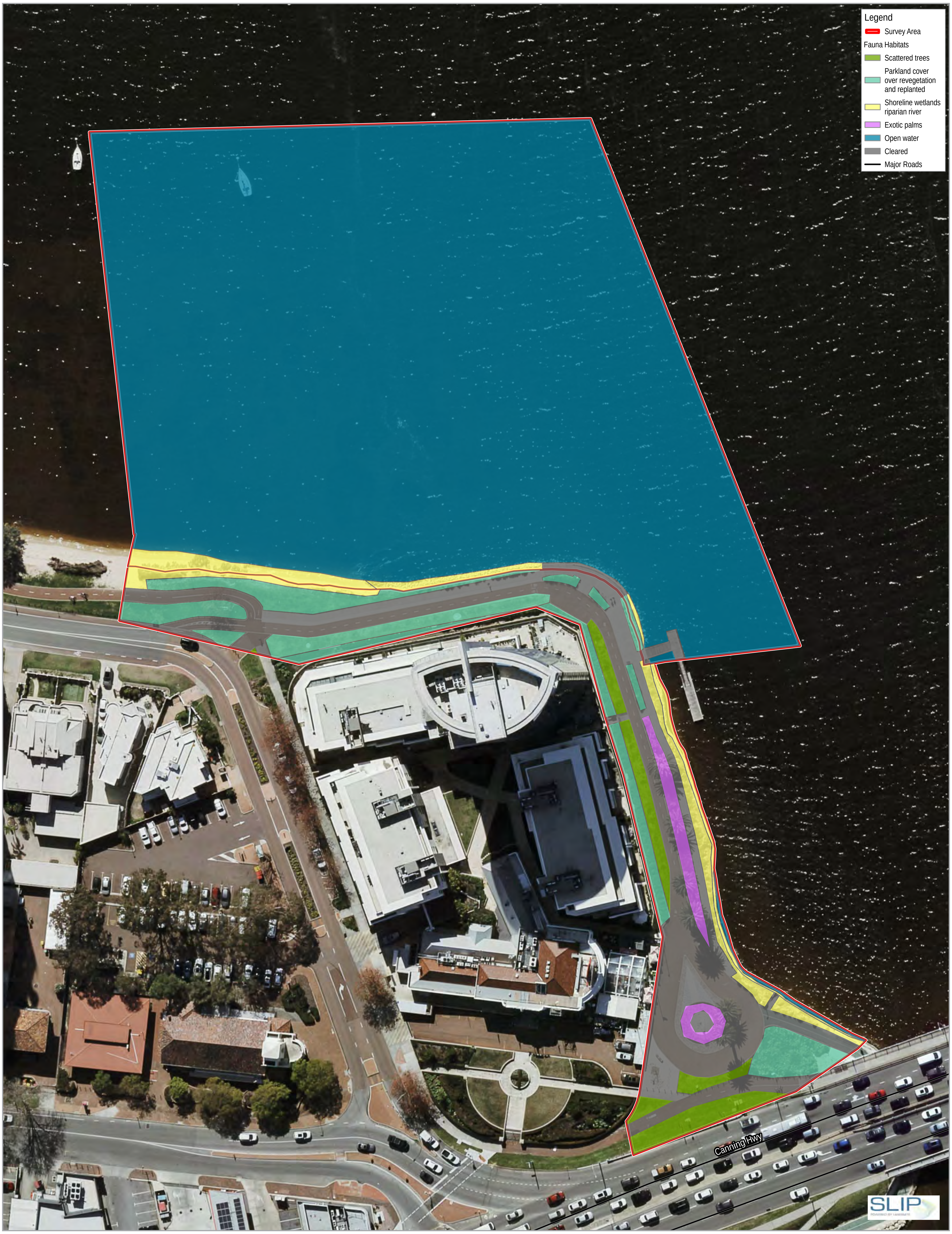
Legend
Survey Area
Fauna Habitats
Scattered trees
Parkland cover over revegetation and replanted
Shoreline wetlands riparian river
Exotic palms
Open water
Cleared
Major Roads
Canning Hwy
SLIP

Paper Size ISO A3

0 5 10 15 20
Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Applecross Site
Fauna Habitats

Project No.	12658767
Revision No.	0
Date	16/05/2025

FIGURE 11A

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_011A_FaunaHabitats_Rev0
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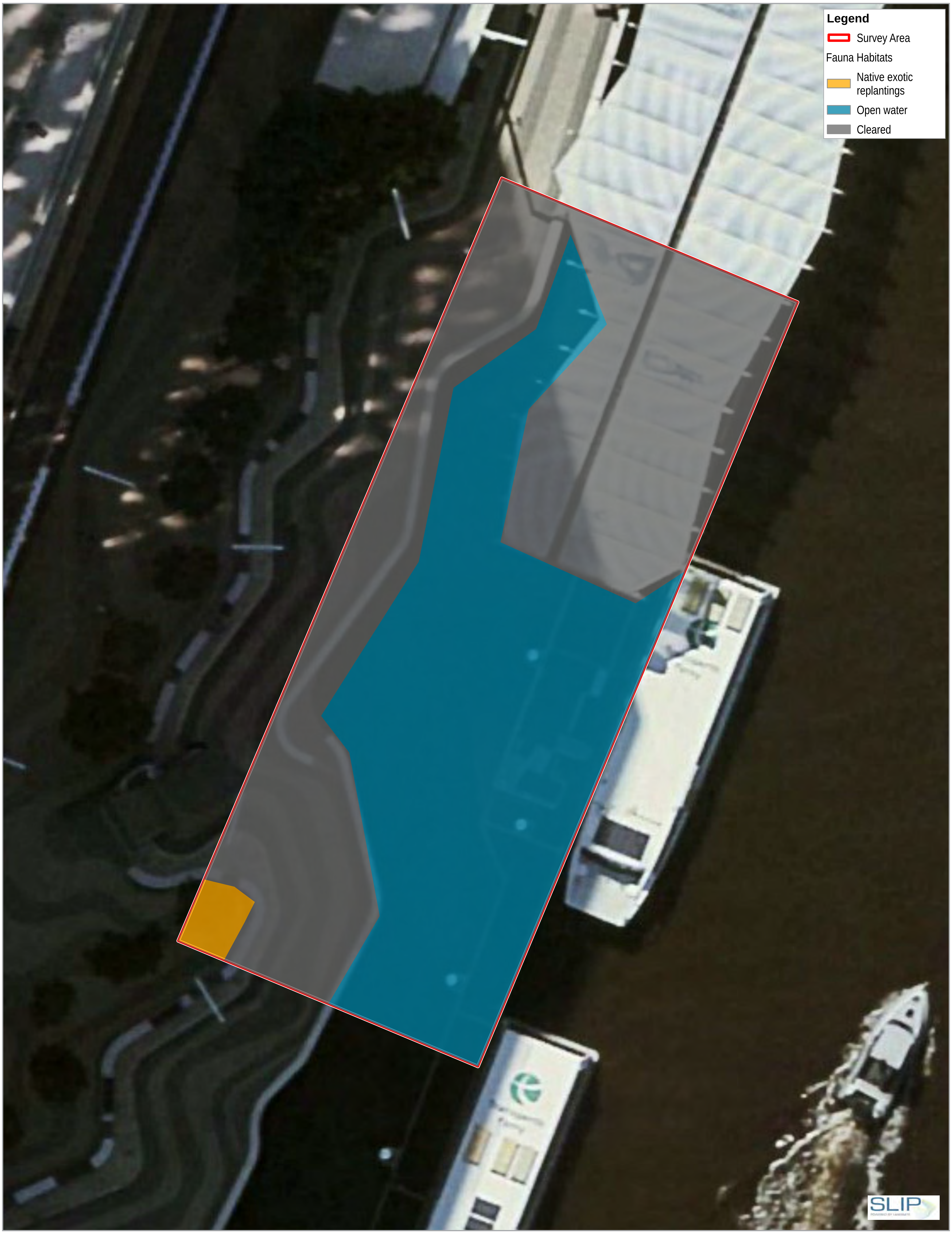
Legend
Survey Area
Fauna Habitats
Native exotic replantings
Open water
Cleared
SLIP
Paper Size ISO A3
0 1 2 3 4
Meters
N

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

GHD

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Elizabeth Quay Site
Fauna Habitats

Project No. 12658767
Revision No. 0
Date 16/05/2025

FIGURE 11B

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_011B_FaunaHabitats_Rev0
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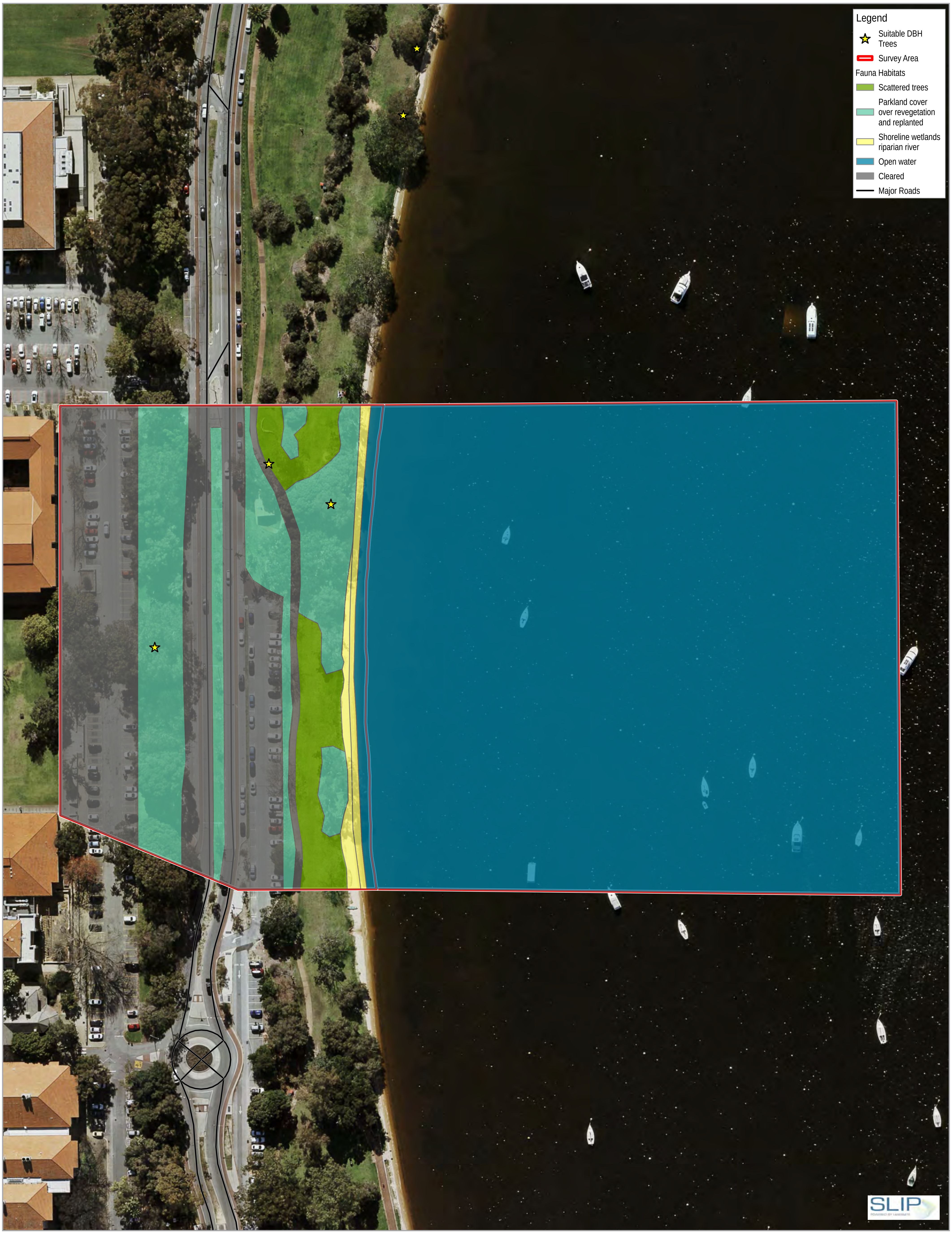
Legend
Suitable DBH Trees
Survey Area
Fauna Habitats
Scattered trees
Parkland cover over revegetation and replanted
Shoreline wetlands riparian river
Open water
Cleared
Major Roads
SLIP

Paper Size ISO A3

0 5 10 15 20
Meters
N

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Matilda Bay Site
Fauna Habitats

Project No.	12658767
Revision No.	0
Date	16/05/2025

FIGURE 11C

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_011C_FaunaHabitats_Rev0
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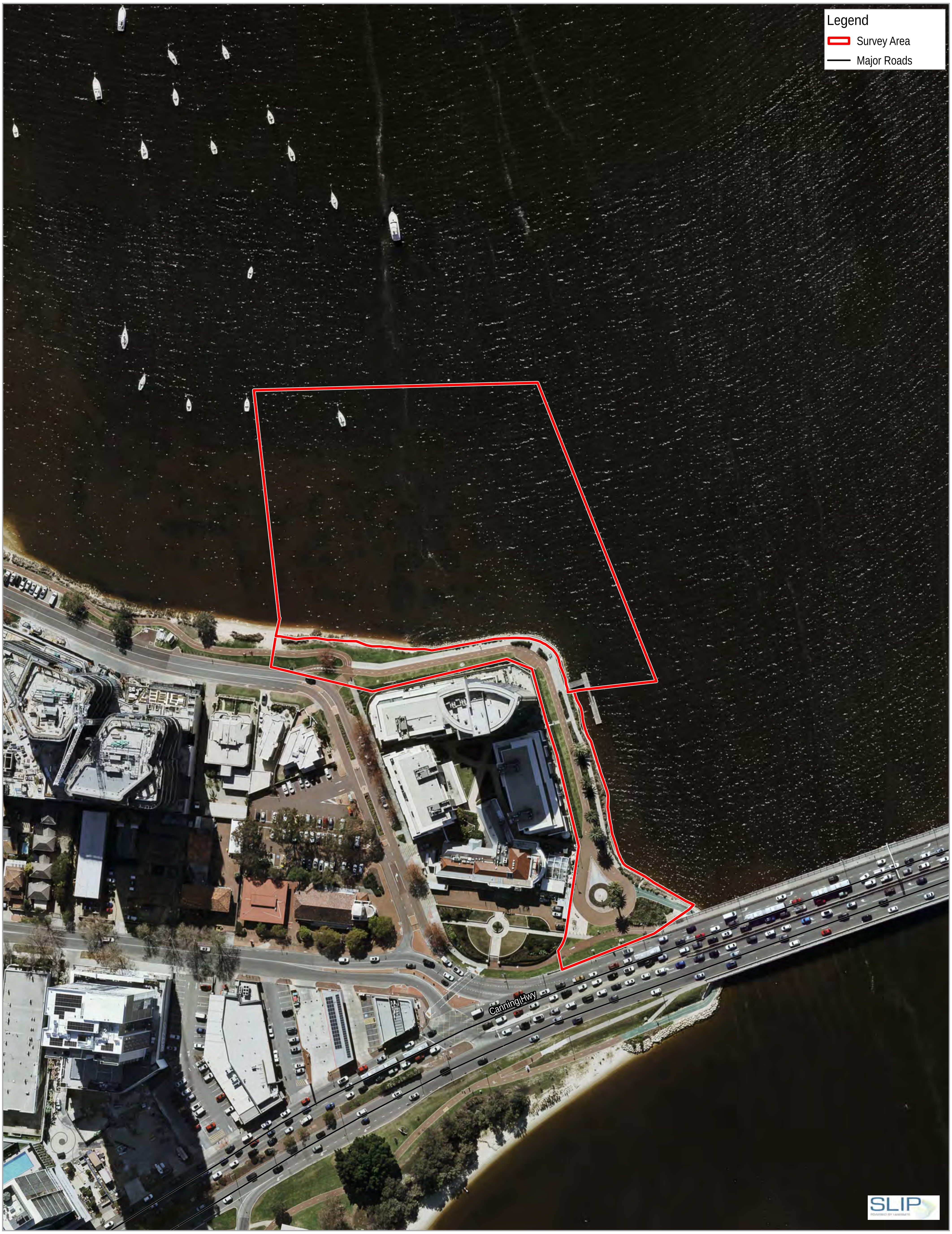
Legend
Survey Area
Major Roads
Canning Hwy
SLIP

Paper Size ISO A3

0 5 10 15 20
Meters
N

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Applecross Site
Significant Tree Locations

Project No. 12658767
Revision No. 0
Date 16/05/2025

FIGURE 12A

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_012A_SignificantTrees_Rev0
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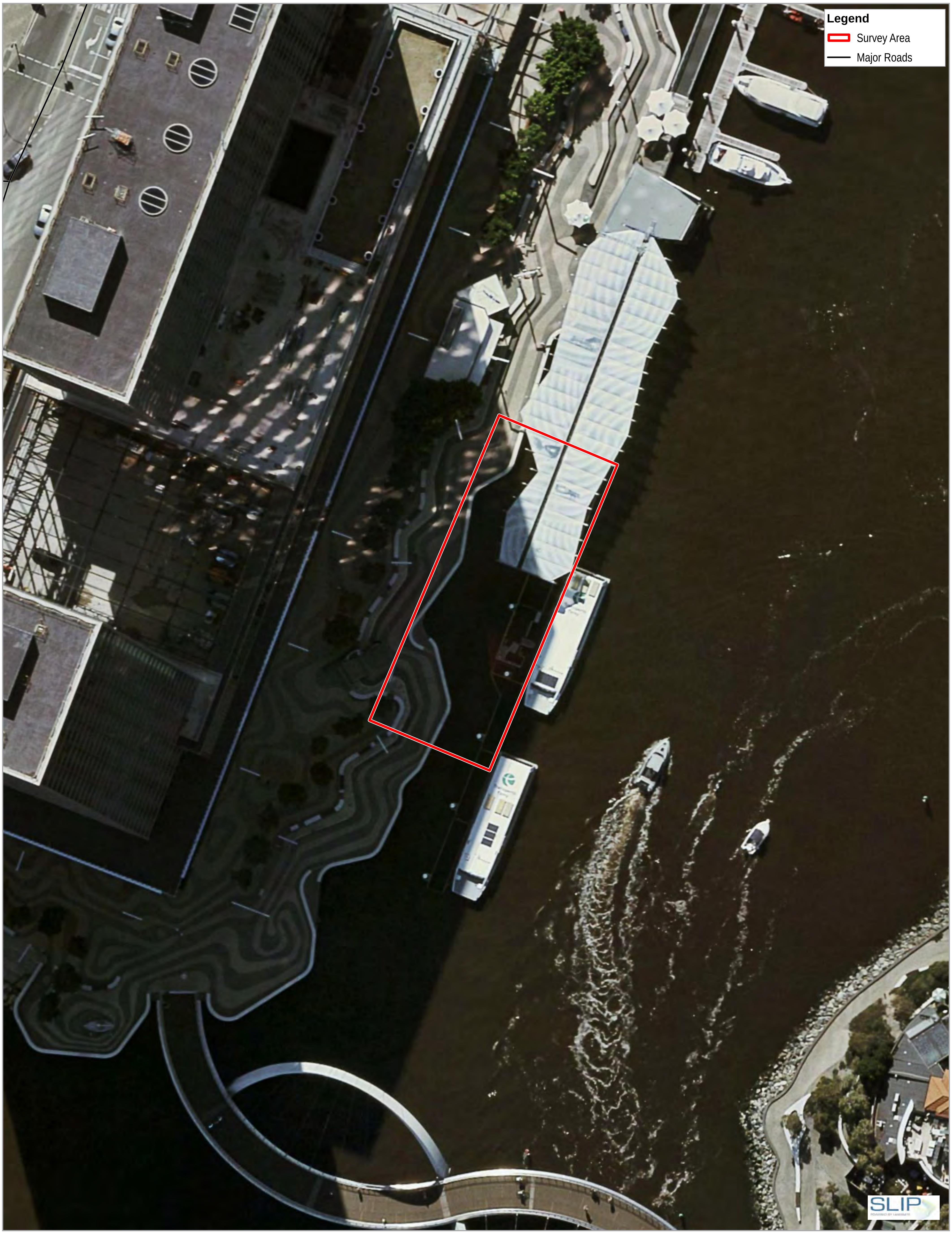

Paper Size ISO A3

0 1 2 3 4

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Elizabeth Quay Site
Significant Tree Locations

Project No.	12658767
Revision No.	0
Date	16/05/2025

FIGURE 12B

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_012B_SignificantTrees_Rev0
Print date: 16 May 2025 - 16:45

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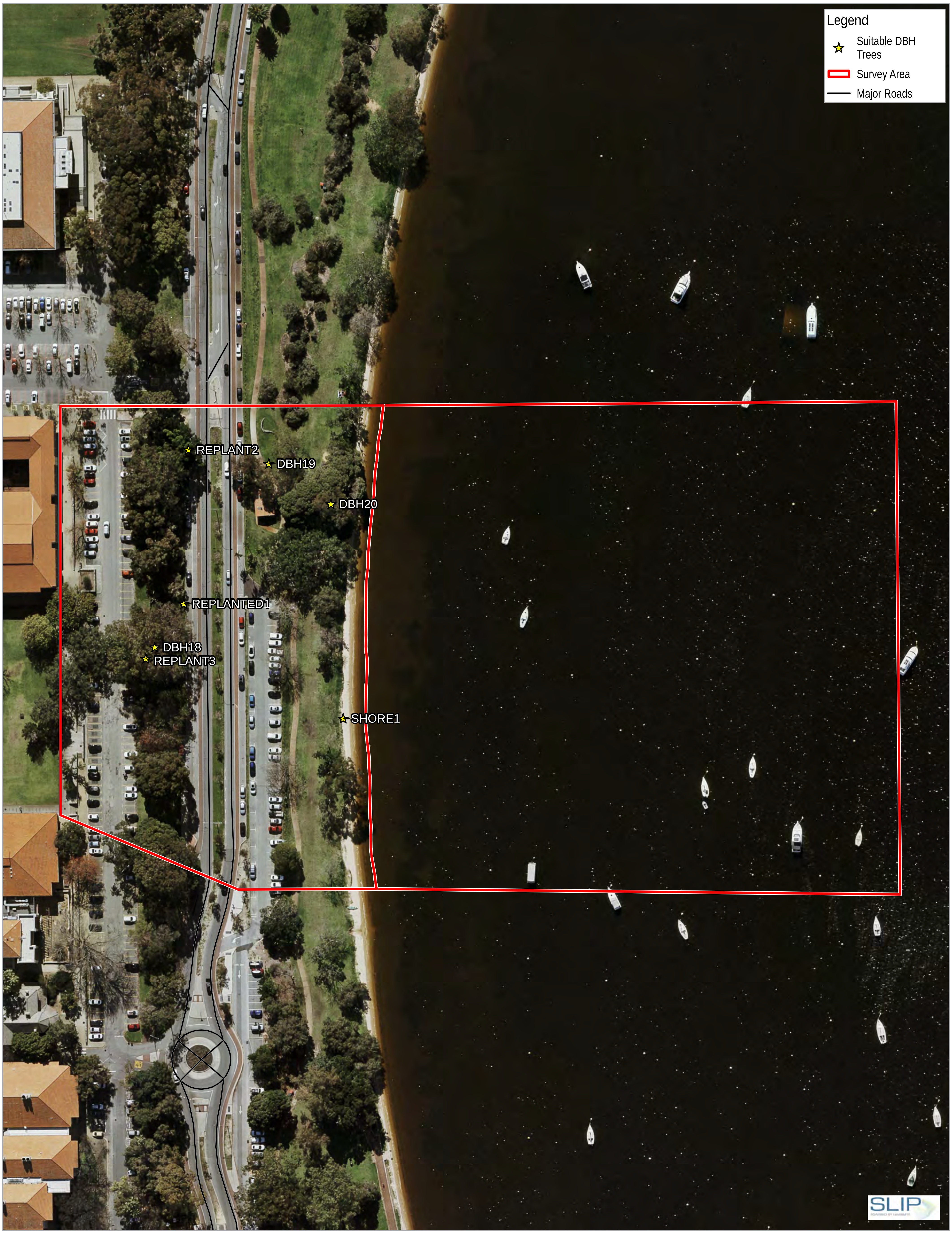
Legend
Suitable DBH Trees
Survey Area
Major Roads
REPLANT2
DBH19
DBH20
REPLANTED1
DBH18
REPLANT3
SHORE1
SLIP

Paper Size ISO A3

0 5 10 15 20

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

GHD

Public Transport Authority
Swan River Ferry Expansion
Ecology and EIA Support

Matilda Bay Site
Significant Tree Locations

Project No. 12658767
Revision No. 0
Date 16/05/2025

FIGURE 12C

\\ghdnet.internal\ghd\AU\Perth\Projects\61\12658767\GIS\Maps\Working\12658767_SwanRiverFerryExpansion_BP_Working\12658767_SwanRiverFerryExpansion_BP_Working.aprx\12658767_012C_SignificantTrees_Rev0
Print date: 16 May 2025 - 16:46

Data source: WANow: Landgate / SLIP. Created by: bpalm

Appendix B

Relevant legislation, conservation codes and background information

Relevant legislation

Federal *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Federal Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the EPBC Act as Matters of National Environmental Significance (MNES).

The biological aspects listed as MNES include:

Nationally threatened flora and fauna species and ecological communities

Migratory species

A person must not undertake an action that has, will have, or is likely to have a significant impact (direct or indirect) on MNES, without approval from the Federal Minister for the Environment.

The EPBC Act is administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

State *Environmental Protection Act 1986*

The *Environmental Protection Act 1986* (EP Act) is the primary legislative Act dealing with the protection of the environment in Western Australia. The Act allows the Environmental Protection Authority (EPA), to prevent, control and abate pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing. Part IV of the EP Act is administered by the EPA and makes provisions for the EPA to undertake environmental impact assessment of significant proposals, strategic proposals and land use planning schemes.

The Department of Water and Environment Regulation (DWER) is responsible for administering the clearing provisions of the EP Act (Part V). Clearing of native vegetation in Western Australia requires a permit from the DWER, unless exemptions apply. Applications for clearing permits are assessed by the Department and decisions are made to grant or refuse the application in accordance with the Act. When making a decision the assessment considers clearing against the ten clearing principles as specified in Schedule 5 of the EP Act:

2. Native vegetation should not be cleared if it comprises a high level of biodiversity.
3. Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a significance habitat for fauna indigenous to Western Australia.
4. Native vegetation should not be cleared if it includes, or is necessary, for the continued existence of rare flora.
5. Native vegetation should not be cleared if it comprises the whole or part of native vegetation in an area that has been extensively cleared.
6. Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
7. Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
8. Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
9. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
10. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

11. Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

Exemptions for clearing include clearing that is a requirement of a written law or authorised under certain statutory processes (listed in Schedule 6 of the EP Act) and exemptions for prescribed low impact day-to-day activities (prescribed in the Environmental Protection (Clearing of Native Vegetation) Regulations 2004); these exemptions do not apply in environmentally sensitive areas (ESAs).

State *Biodiversity and Conservation Act 2016*

The *Biodiversity Conservation Act 2016* (BC Act) provides for the conservation and protection of biodiversity and biodiversity components, as well as the promotion of the ecologically sustainable use of biodiversity components in Western Australia. The BC Act replaces both the repealed *Wildlife Conservation Act 1950* (WC Act) and the *Sandalwood Act 1929* (Sandalwood Act), as well as their associated regulations. To attain the objectives of the BC Act, principles of ecological sustainable development have been established:

- Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations
- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations
- The conservation of biodiversity and ecological integrity should be a fundamental consideration indecision-making
- Improved valuation, pricing and incentive mechanisms should be promoted.

The BC Act is administered by the Department of Biodiversity Conservation and Attractions (DBCA).

State Biosecurity and Agriculture Management Act 2007

The *Biosecurity and Agriculture Management Act 2007* (BAM Act) and associated regulations are administered by the Department of Primary Industries and Regional Development (DPIRD) and replace the repealed *Agriculture and Related Resources Protection Act 1976.* The main purposes of the BAM Act and its regulations are to:

- Prevent new animal and plant pests (vermin and weeds) and diseases from entering WA
- Manage the impact and spread of those pests already present in the state
- Safely manage the use of agricultural and veterinary chemicals
- Increased control over the sale of agricultural products that contain violative chemical residues.

The Western Australian Organism List (WAOL) provides the status of organisms which have been categorised under the BAM Act. A Declared Pest is a prohibited organism or an organism for which a declaration under Section 22(2) of the Act is in force. Declared Pests may be assigned a control category including: C1 (exclusion), C2 (eradication) and C3 (management). The category may apply to the whole of the State, LGAs, districts, individual properties or even paddocks, and all landholders are obliged to comply with the specific category of control. Categories of control are defined below.

DPIRD Categories for Declared Pests under the BAM Act

Control class code	Description
C1 (Exclusion)	Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.
C2 (Eradication)	Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.
C3 (Management)	Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.

Background information

Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are declared by the Minister for Environment under Section 51B of the EP Act. The Table below outlines the aspects of areas declared as ESA in the Environmental Protection (Environmentally Sensitive Areas) Notice 2005.

Aspects of ESAs

Aspects of Environmentally Sensitive Areas
A declared World Heritage property as defined in Section 13 of the EPBC Act.
An area that is included on the Register of the National Estate (RNE), because of its natural values, under the *Australian Heritage Commission Act 1975* of the Commonwealth (the RNE was closed in 2007 and is no longer a statutory list – all references to the RNE were removed from the EPBC Act on 19 February 2012).
A defined wetland and the area within 50 m of the wetland. Defined wetlands include Ramsar wetlands, conservation category wetlands and nationally important wetlands.
The area covered by vegetation within 50 m of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located.
The area covered by a Threatened Ecological Community.
A Bush Forever Site listed in “Bush Forever” Volumes 1 and 2 (2000), published by the Western Australia Planning Commission, except to the extent to which the site is approved to be developed by the Western Australia Planning Commission.
The areas covered by the *Environmental Protection (Gnangara Mound Crown Land) Policy 1992*.
The areas covered by the *Environmental Protection (Western Swamp Tortoise Habitat) Policy 2002.*
The areas covered by the lakes to which the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (EPP Lakes) applies.
Protected wetlands as defined in the *Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998*.

Reserves and conservation areas

Bush Forever

Bush Forever, which was released in December 2000 and proclaimed in 2010, is a Government initiate aimed to retain and protect regionally significant bushland on the Swan Coastal Plain within the Perth Metropolitan Region. Bush Forever aims to protect more than 51,000 ha of regionally significant bushland within 287 sites across the metropolitan portion of the Swan Coastal Plain (Government of Western Australia (GoWA) 2000). Bush Forever sites constitute ESAs as declared by a notice under Section 51B of the EP Act.

Department of Biodiversity, Conservation and Attractions managed land and waters

DBCA manages lands and waters throughout Western Australia to conserve ecosystems and species, and to provide for recreation and appreciation of the natural environment. DBCA managed lands and waters include national parks, conservation parks and reserves, marine parks and reserves, regional parks, nature reserves, State forest and timber reserves. Access to, or through, some areas of DBCA managed lands may require a permit or could be restricted due to management activities. Proposed land use changes and development proposals that abut DBCA managed lands will generally be referred to DBCA throughout the assessment process.

Wetlands

Wetlands include not only lakes with open water, but areas of seasonally, intermittently or permanently waterlogged soil.

Ramsar Wetlands (Wetlands of International Importance)

The Convention of Wetlands of International Importance was signed in 1971 at the Iranian town of Ramsar. The Convention has since been referred to as the Ramsar Convention. Ramsar Listed wetlands are “sites containing representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity … because of their ecological, botanical, zoological, limnological or hydrological importance” (DAWE 2020b). Once a Ramsar Listed Wetland is designated, the country agrees to manage its conservation and ensure its wise use. Under the Convention, wise use is broadly defined as “maintaining the ecological character of a wetland” (DAWE 2020b).

Nationally important wetlands

Wetlands of national significance are listed under the Directory of Important Wetlands in Australia. Nationally important wetlands are wetlands which meet at least one of the following criteria (DAWE 2020a):

- It is a good example of a wetland type occurring within a biogeographic region in Australia
- It is a wetland which plays an important ecological or hydrological role in the natural functioning of a major wetland system/complex
- It is a wetland which is important as the habitat for animal taxa at a vulnerable stage in their life cycles, or provides a refuge when adverse conditions such as drought prevail
- The wetland supports one percent or more of the national populations of any native plant or animal taxa
- The wetland supports native plant or animal taxa or communities which are considered endangered or vulnerable at the national level
- The wetland is of outstanding historical or cultural significance.

Geomorphic wetlands

Categorisation of wetlands has been conducted by Hill et al. (1996), delineating Swan Coastal Plain wetlands into levels of protection and management categories. Conservation Category Wetlands are wetlands that support high levels of attributes and functions. Resource Enhancement Wetlands are those that have been partly modified but still support substantial functions and attributes. Multiple Use Wetlands are classified as those wetlands with few attributes that still provide important wetland functions. Multiple Use wetlands have few important ecological attributes and functions remaining.

The Geomorphic Wetlands Swan Coastal Plain dataset displays the location, boundary, geomorphic classification (wetland type) and management category of wetlands on the Swan Coastal Plain.

Vegetation extent and status

The National Objectives and Targets for Biodiversity Conservation 2001–2005 (Commonwealth of Australia 2001) recognise that the retention of 30 percent or more of the pre-clearing extent of each ecological community is necessary if Australia’s biological diversity is to be protected. This is the threshold level below which species loss appears to accelerate exponentially and loss below this level should not be permitted. This level of recognition is in keeping with the targets recommended in the review of the National Strategy for the Conservation of Australia’s Biological Diversity (ANZECC 2000).

The extent of remnant native vegetation in WA has been assessed by Shepherd et al. (2002) and the GoWA (2019), based on broadscale vegetation association mapping by Beard (various publications). The GoWA produces Statewide Vegetation Statistics Reports that are used for a number of purposes including conservation planning, land use planning and when assessing development applications. The reports are updated every 2-3 years.

Vegetation condition

The vegetation condition can be assessed in accordance with the vegetation condition rating scale for the South West and Interzone Botanical Provinces (EPA 2016a). The scale recognises the intactness of vegetation and consists of six rating levels as outlined below.

Vegetation condition rating scale for the South West and Interzone Botanical Provinces

Condition	South West and Interzone Botanical Provinces description
Pristine	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
Completely Degraded	The structure of vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as ‘parkland cleared’ with the flora comprising weed or crop species with isolated native trees or shrubs.

Conservation codes

Species of significant flora, fauna and communities are protected under both Federal and State Acts. The Federal EPBC Act provides a legal framework to protect and manage nationally important flora and communities. The State BC Act is the primary wildlife conservation legislation in Western Australia. Information on the conservation codes is summarised in the following sections.

Ecological communities

Significant communities

Ecological communities are defined as naturally occurring biological assemblages that occur in a particular type of habitat (English and Blyth 1997). Federally listed Threatened Ecological Communities (TECs) are protected under the EPBC Act. The BC Act provides for the Minister to list an ecological community as a TEC (section 27), or as a collapsed ecological community (section 31) statutory listing of State TECs by the Minister. The legislation also describes statutory processes for preparing recovery plans for TECs, the registration of their critical habitat, and penalties for unauthorised modification of TECs.

Possible TECs that do not meet survey criteria are added to the DBCA Priority Ecological Community (PEC) List under Priorities 1, 2 and 3. These are ecological communities that are adequately known; are rare but not threatened, or meet criteria for Near Threatened. PECs that have been recently removed from the threatened list are placed in Priority 4. These ecological communities require regular monitoring. Conservation dependent ecological communities are placed in Priority 5. PECs are not listed under any formal Federal or State legislation, however, may be listed as TECs under the EPBC Act.

Codes and definitions for TECs listed under the EPBC Act and/or BC Act

Categories	Definitions
Federal Government Conservation Categories (EPBC Act)	
Critically Endangered (CR)	An ecological community if, at that time, is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000).
Endangered *(EN)	An ecological community if, at that time: – is not critically endangered; and – is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000).
Vulnerable (VU)	An ecological community if, at that time: – is not critically endangered or endangered; and – is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000).
Western Australia Conservation Categories (BC Act)	
Threatened Ecological Communities	
Critically Endangered (CR)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.
Endangered (EN)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.
Vulnerable (VU)	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured

Categories	Definitions
	and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.
Collapsed ecological communities	
An ecological community is eligible for listing as a collapsed ecological community at a particular time if, at that time, there is no reasonable doubt that the last occurrence of the ecological community has collapsed); or, the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover – • its species composition or structure; or • its species composition and structure. Section 33 of the BC Act provides for a collapsed ecological community to be regarded as a threatened ecological community if it is discovered in a state that no longer makes it eligible for listing as a collapsed ecological community.	

Categories and definitions for PECs as listed by the DBCA

Category	Description
Priority 1	Poorly known ecological communities. Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤100 ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
Priority 2	Poorly known ecological communities. Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200 ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.
Priority 3	Poorly known ecological communities. – Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or: – communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or; – communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes. Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.
Priority 4	Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring. – Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands. – Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. – Ecological communities that have been removed from the list of threatened communities during the past five years.
Priority 5	Conservation Dependent ecological communities. Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Other significant vegetation

Vegetation may be significant for a range of reasons other than a statutory listing. The EPA (2016a, b) states that significant vegetation may include vegetation that includes the following:

- Restricted distribution
- Degree of historical impact from threatening processes
- A role as a refuge
- Providing an important function required to maintain ecological integrity of a significant ecosystem
- Local endemism in restricted habitats
- Novel combinations of taxa
- A role as a key habitat for Threatened species or large population representing a significant proportion of the local to regional total population of a species
- Being representative of a vegetation unit in ‘pristine’ condition in a highly cleared landscape, recently discovered range extensions, or isolated outliers of the main range.

This may apply at a number of levels, so the unit may be significant when considered at the fine-scale (intra-locality), intermediate-scale (locality or inter-locality) or broad-scale (local to region).

Flora and fauna

Significant flora and fauna

Species of significant flora are protected under both Federal and State legislation. Any activities that are deemed to have a significant impact on species that are recognised by the EPBC Act, and/or the BC Act can warrant referral to DAWE and/or the EPA.

The Federal conservation level of flora and fauna species and their significance status is assessed under the EPBC Act. The significance levels for flora and fauna used in the EPBC Act align with the International Union for Conservation of Nature (IUCN) Red List criteria, which are internationally recognised as providing best practice for assigning the conservation status of species. The EPBC Act also protects land and migratory species that are listed under International Agreements. The list of migratory species established under section 209 of the EPBC Act comprises:

- Migratory species which are native to Australia and are included in the appendices to the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals Appendices I and II)
- Migratory species included in annexes established under the Japan-Australia Migratory Bird Agreement (JAMBA) and the China–Australia Migratory Bird Agreement (CAMBA)
- Native, migratory species identified in a list established under, or an instrument made under, an international agreement approved by the Minister, such as the republic of Korea–Australia Migratory Bird Agreement (ROKAMBA)

The State conservation level of flora and fauna species and their significance status also follows the IUCN Red List criteria. Under the BC Act flora and fauna can be listed as Threatened, Extinct and as Specially Protected species.

Threatened species are those are species which have been adequately searched for and are deemed to be, in the wild, either rare, under identifiable threat of extinction, or otherwise in need of special protection, and have been gazetted as such. The assessment of the conservation status of Threatened species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria. Specially protected species meet one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection. Species that are listed as Threatened or Extinct species under the BC Act cannot also be listed as Specially Protected species.

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

For the purposes of this assessment, all species listed under the EPBC Act, BC Act and DBCA Priority species are considered significant.

Appendix C

Database Searches

NatureMap/Dandjoo Fauna Species Report of all sites of Swan River Survey Area

TAXON	CLASS	CONS
Crinia georgiana	**AMPHIBIAN**	
Crinia glauerti	**AMPHIBIAN**	
Crinia insignifera	**AMPHIBIAN**	
Crinia pseudinsignifera	**AMPHIBIAN**	
Heleioporus eyrei	**AMPHIBIAN**	
Heleioporus psammophilus	**AMPHIBIAN**	
Limnodynastes dorsalis	**AMPHIBIAN**	
Litoria adelaidensis	**AMPHIBIAN**	
Litoria moorei	**AMPHIBIAN**	
Myobatrachus gouldii	**AMPHIBIAN**	
Neobatrachus pelobatoides	**AMPHIBIAN**	
Pseudophryne guentheri	**AMPHIBIAN**	
Pseudophryne occidentalis	**AMPHIBIAN**	
Acanthagenys rufogularis	**BIRD**	
Acanthiza apicalis	**BIRD**	
Acanthiza chrysorrhoa	**BIRD**	
Acanthiza inornata	**BIRD**	
Acanthiza uropygialis	**BIRD**	
Acanthorhynchus superciliosus	**BIRD**	
Accipiter cirrocephalus	**BIRD**	
Accipiter cirrocephalus subsp. cirrocephalus	**BIRD**	
Accipiter fasciatus	**BIRD**	
Accipiter fasciatus subsp. didimus	**BIRD**	
Accipiter fasciatus subsp. fasciatus	**BIRD**	
Acrocephalus australis	**BIRD**	
Acrocephalus australis subsp. gouldi	**BIRD**	
Actitis hypoleucos	**BIRD**	**MI**
Aegotheles cristatus	**BIRD**	
Aegotheles cristatus subsp. cristatus	**BIRD**	
Amazona auropalliata	**BIRD**	
Anas castanea	**BIRD**	
Anas clypeata	**BIRD**	
Anas gracilis	**BIRD**	

TAXON	CLASS	CONS
Anas platyrhynchos	**BIRD**	
Anas rhynchotis	**BIRD**	
Anas superciliosa	**BIRD**	
Anhinga melanogaster	**BIRD**	
Anhinga novaehollandiae	**BIRD**	
Anous tenuirostris subsp. melanops	**BIRD**	**EN**
Anser anser	**BIRD**	
Anthochaera carunculata	**BIRD**	
Anthochaera lunulata	**BIRD**	
Anthus australis	**BIRD**	
Apus pacificus	**BIRD**	**MI**
Aquila audax	**BIRD**	
Aquila morphnoides	**BIRD**	
Aquila morphnoides subsp. *morphnoides*	**BIRD**	
Ardea alba	**BIRD**	
Ardea garzetta	**BIRD**	
Ardea ibis	**BIRD**	
Ardea intermedia	**BIRD**	
Ardea modesta	**BIRD**	
Ardea novaehollandiae	**BIRD**	
Ardea pacifica	**BIRD**	
Ardea sacra	**BIRD**	
Ardenna carneipes	**BIRD**	**VU**
Ardeotis australis	**BIRD**	
Arenaria interpres	**BIRD**	**MI**
Argusianus argus	**BIRD**	
Artamus cinereus	**BIRD**	
Artamus cinereus subsp. melanops	**BIRD**	
Artamus cyanopterus	**BIRD**	
Artamus personatus	**BIRD**	
Aythya australis	**BIRD**	
Barnardius zonarius	**BIRD**	
Biziura lobata	**BIRD**	
Botaurus poiciloptilus	**BIRD**	**EN**

TAXON	CLASS	CONS
Burhinus grallarius	**BIRD**	
Cacatua galerita	**BIRD**	
Cacatua galerita subsp. galerita	**BIRD**	
Cacatua pastinator subsp. pastinator	**BIRD**	**CD**
Cacatua roseicapilla	**BIRD**	
Cacatua sanguinea	**BIRD**	
Cacatua sanguinea subsp. westralensis	**BIRD**	
Cacatua tenuirostris	**BIRD**	
Cacomantis flabelliformis	**BIRD**	
Cacomantis flabelliformis subsp. flabelliformis	**BIRD**	
Cacomantis pallidus	**BIRD**	
Calidris acuminata	**BIRD**	**MI**
Calidris alba	**BIRD**	
Calidris canutus	**BIRD**	**EN**
Calidris ferruginea	**BIRD**	**CR**
Calidris melanotos	**BIRD**	**MI**
Calidris ruficollis	**BIRD**	**MI**
Calidris subminuta	**BIRD**	**MI**
Calidris tenuirostris	**BIRD**	**CR**
Calonectris leucomelas	**BIRD**	**MI**
Calyptorhynchus banksii naso	**BIRD**	**VU**
Carduelis carduelis	**BIRD**	
Charadrius dubius	**BIRD**	**MI**
Charadrius leschenaultii	**BIRD**	**VU**
Charadrius melanops	**BIRD**	
Charadrius mongolus	**BIRD**	**EN**
Charadrius ruficapillus	**BIRD**	
Chenonetta jubata	**BIRD**	
Cheramoeca leucosterna	**BIRD**	
Chlidonias leucopterus	**BIRD**	**MI**
Chroicocephalus novaehollandiae	**BIRD**	
Chrysococcyx basalis	**BIRD**	
Chrysococcyx lucidus	**BIRD**	
Chrysococcyx lucidus subsp. plagosus	**BIRD**	

TAXON	CLASS	CONS
Cincloramphus cruralis	**BIRD**	
Cincloramphus mathewsi	**BIRD**	
Circus approximans	**BIRD**	
Circus assimilis	**BIRD**	
Cladorhynchus leucocephalus	**BIRD**	
Climacteris rufa	**BIRD**	
Collocalia esculenta	**BIRD**	
Colluricincla harmonica	**BIRD**	
Colluricincla harmonica subsp. rufiventris	**BIRD**	
Columba livia	**BIRD**	
Coracina maxima	**BIRD**	
Coracina novaehollandiae	**BIRD**	
Corvus bennetti	**BIRD**	
Corvus coronoides	**BIRD**	
Corvus splendens	**BIRD**	
Coturnix pectoralis	**BIRD**	
Coturnix ypsilophora	**BIRD**	
Cracticus nigrogularis	**BIRD**	
Cracticus torquatus	**BIRD**	
Cygnus atratus	**BIRD**	
Cygnus olor	**BIRD**	
Dacelo novaeguineae	**BIRD**	
Daphoenositta chrysoptera	**BIRD**	
Daption capense	**BIRD**	
Dasyornis longirostris	**BIRD**	**EN**
Dendrocygna arcuata	**BIRD**	
Dicaeum hirundinaceum	**BIRD**	
Dicrurus bracteatus subsp. bracteatus	**BIRD**	
Diomedea chlororhynchos	**BIRD**	
Diomedea chlororhynchos subsp. carteri	**BIRD**	
Diomedea chrysostoma	**BIRD**	**VU**
Diomedea exulans	**BIRD**	**VU**
Diomedea melanophris subsp. melanophris	**BIRD**	**VU**
Dromaius novaehollandiae	**BIRD**	

TAXON	CLASS	CONS
Egretta garzetta	**BIRD**	
Egretta novaehollandiae	**BIRD**	
Egretta sacra	**BIRD**	
Elanus axillaris	**BIRD**	
Elanus caeruleus	**BIRD**	
Elseyornis melanops	**BIRD**	
Eolophus roseicapilla	**BIRD**	
Eopsaltria australis subsp. *griseogularis*	**BIRD**	
Eopsaltria georgiana	**BIRD**	
Epthianura albifrons	**BIRD**	
Epthianura tricolor	**BIRD**	
Erythrogonys cinctus	**BIRD**	
Eudyptes chrysocome subsp. *moseleyi*	**BIRD**	
Eudyptula minor subsp. *novaehollandiae*	**BIRD**	
Eurostopodus argus	**BIRD**	
Eurystomus orientalis	**BIRD**	
Falco berigora	**BIRD**	
Falco cenchroides	**BIRD**	
Falco hypoleucos	**BIRD**	**VU**
Falco longipennis	**BIRD**	
Falco peregrinus	**BIRD**	**OS**
Fringilla coelebs	**BIRD**	
Fulica atra	**BIRD**	
Fulmarus glacialoides	**BIRD**	
Gallicolumba jobiensis	**BIRD**	
Gallinago hardwickii	**BIRD**	**MI**
Gallinago stenura	**BIRD**	**MI**
Gallinula tenebrosa	**BIRD**	
Gallinula ventralis	**BIRD**	
Gallirallus philippensis	**BIRD**	
Gallus gallus	**BIRD**	
Gavicalis virescens	**BIRD**	
Gelochelidon nilotica	**BIRD**	**MI**
Geopelia cuneata	**BIRD**	

TAXON	CLASS	CONS
Gerygone fusca	**BIRD**	
Glossopsitta concinna	**BIRD**	
Glossopsitta porphyrocephala	**BIRD**	
Gliciphila melanops	**BIRD**	
Gracula religiosa	**BIRD**	
Grallina cyanoleuca	**BIRD**	
Haematopus fuliginosus	**BIRD**	
Haematopus longirostris	**BIRD**	
Haliaeetus leucogaster	**BIRD**	
Haliastur sphenurus	**BIRD**	
Halobaena caerulea	**BIRD**	
Hamirostra isura	**BIRD**	
Hieraaetus morphnoides	**BIRD**	
Himantopus himantopus	**BIRD**	
Hirundo ariel	**BIRD**	
Hirundo neoxena	**BIRD**	
Hirundo nigricans	**BIRD**	
Hydroprogne caspia	**BIRD**	**MI**
Hylacola cauta subsp. *whitlocki*	**BIRD**	
Ixobrychus dubius	**BIRD**	**P4**
Ixobrychus flavicollis subsp. *australis*	**BIRD**	**P2**
Ixobrychus minutus subsp. *dubius*	**BIRD**	
Lalage tricolor	**BIRD**	
Larus dominicanus	**BIRD**	
Larus novaehollandiae	**BIRD**	
Larus pacificus	**BIRD**	
Leipoa ocellata	**BIRD**	**VU**
Leucosarcia melanoleuca	**BIRD**	
Lichenostomus leucotis	**BIRD**	
Lichenostomus ornatus	**BIRD**	
Lichenostomus virescens	**BIRD**	
Lichmera indistincta	**BIRD**	
Limosa lapponica	**BIRD**	**MI**
Limosa limosa	**BIRD**	**MI**

TAXON	CLASS	CONS
Limosa limosa subsp. *melanuroides*	BIRD	
Lonchura castaneothorax	BIRD	
Lophoictinia isura	BIRD	
Macronectes giganteus	BIRD	MI
Malacorhynchus membranaceus	BIRD	
Malurus elegans	BIRD	
Malurus lamberti	BIRD	
Malurus lamberti subsp. *assimilis*	BIRD	
Malurus leucopterus	BIRD	
Malurus leucopterus subsp. *leuconotus*	BIRD	
Malurus pulcherrimus	BIRD	
Malurus splendens	BIRD	
Manorina flavigula	BIRD	
Megalurus gramineus	BIRD	
Megalurus gramineus subsp. *gramineus*	BIRD	
Melanodryas cucullata	BIRD	
Melithreptus brevirostris	BIRD	
Melithreptus brevirostris subsp. *leucogenys*	BIRD	
Melithreptus chloropsis	BIRD	
Melithreptus lunatus	BIRD	
Melopsittacus undulatus	BIRD	
Merops ornatus	BIRD	
Microcarbo melanoleucos	BIRD	
Microeca fascinans	BIRD	
Milvus migrans	BIRD	
Morus serrator	BIRD	
Myiagra inquieta	BIRD	
Neophema elegans	BIRD	
Neophema petrophila	BIRD	
Ninox connivens	BIRD	
Ninox connivens subsp. *connivens (*southwest subpop.*)*	BIRD	P3
Ninox novaeseelandiae	BIRD	
Numenius madagascariensis	BIRD	CR
Numenius phaeopus	BIRD	MI

TAXON	CLASS	CONS
Nycticorax caledonicus	**BIRD**	
Nymphicus hollandicus	**BIRD**	
Oceanites marinus subsp. *dulciae*	**BIRD**	
Oceanites oceanicus	**BIRD**	**MI**
Ocyphaps lophotes	**BIRD**	
Oxyura australis	**BIRD**	**P4**
Pachycephala pectoralis	**BIRD**	
Pachycephala pectoralis subsp. *fuliginosa*	**BIRD**	
Pachycephala rufiventris	**BIRD**	
Pachycephala rufiventris subsp. *rufiventris*	**BIRD**	
Pachyptila belcheri	**BIRD**	
Pachyptila desolata	**BIRD**	
Pachyptila salvini	**BIRD**	
Pachyptila turtur	**BIRD**	
Pachyptila vittata	**BIRD**	
Padda oryzivora	**BIRD**	
Pandion cristatus	**BIRD**	**MI**
Pandion haliaetus	**BIRD**	**MI**
Pardalotus punctatus	**BIRD**	
Pardalotus punctatus subsp. *punctatus*	**BIRD**	
Pardalotus striatus	**BIRD**	
Pardalotus striatus subsp. *westraliensis*	**BIRD**	
Paroaria coronata	**BIRD**	
Passer domesticus	**BIRD**	
Pelecanoides urinatrix subsp. *exsul*	**BIRD**	
Pelecanus conspicillatus	**BIRD**	
Petrochelidon ariel	**BIRD**	
Petrochelidon nigricans	**BIRD**	
Petroica boodang	**BIRD**	
Petroica cucullata	**BIRD**	
Petroica goodenovii	**BIRD**	
Petroica multicolor subsp. *campbelli*	**BIRD**	
Phaethon rubricauda	**BIRD**	**MI, P4**
Phalacrocorax carbo	**BIRD**	

TAXON	CLASS	CONS
Phalacrocorax carbo subsp. *novaehollandiae*	**BIRD**	
Phalacrocorax fuscescens	**BIRD**	
Phalacrocorax melanoleucos	**BIRD**	
Phalacrocorax melanoleucos subsp. *melanoleucos*	**BIRD**	
Phalacrocorax sulcirostris	**BIRD**	
Phalacrocorax varius	**BIRD**	
Phalacrocorax varius subsp. *hypoleucos*	**BIRD**	
Phaps chalcoptera	**BIRD**	
Phoebetria fusca	**BIRD**	**EN**
Phylidonyris melanops	**BIRD**	
Phylidonyris nigra	**BIRD**	
Phylidonyris nigra subsp. *gouldii*	**BIRD**	
Phylidonyris novaehollandiae	**BIRD**	
Platalea flavipes	**BIRD**	
Platalea regia	**BIRD**	
Platycercus icterotis	**BIRD**	
Platycercus icterotis subsp. *icterotis*	**BIRD**	**P4**
Platycercus spurius	**BIRD**	
Platycercus zonarius	**BIRD**	
Platycercus zonarius subsp. *semitorquatus*	**BIRD**	
Plegadis falcinellus	**BIRD**	**MI**
Pluvialis fulva	**BIRD**	**MI**
Pluvialis squatarola	**BIRD**	**MI**
Podargus strigoides	**BIRD**	
Podiceps cristatus	**BIRD**	
Poephila bichenovii	**BIRD**	
Poephila cincta	**BIRD**	
Poliocephalus poliocephalus	**BIRD**	
Polytelis anthopeplus	**BIRD**	
Porphyrio porphyrio	**BIRD**	
Porzana fluminea	**BIRD**	
Porzana pusilla	**BIRD**	
Porzana tabuensis	**BIRD**	
Psephotus dissimilis	**BIRD**	

TAXON	CLASS	CONS
Psittacula eupatria	**BIRD**	
Psittacula krameri	**BIRD**	
Psittacus erithacus	**BIRD**	
Pterodroma brevirostris	**BIRD**	
Pterodroma lessonii	**BIRD**	
Pterodroma macroptera	**BIRD**	
Pterodroma macroptera subsp. *macoptera*	**BIRD**	
Pterodroma mollis	**BIRD**	
Ptilotula ornatus	**BIRD**	
Puffinus assimilis	**BIRD**	
Puffinus assimilis subsp. *assimilis*	**BIRD**	
Puffinus carneipes	**BIRD**	
Puffinus griseus	**BIRD**	
Puffinus huttoni	**BIRD**	**EN**
Puffinus pacificus	**BIRD**	
Purnella albifrons	**BIRD**	
Purpureicephalus spurius	**BIRD**	
Recurvirostra novaehollandiae	**BIRD**	
Rhipidura albiscapa	**BIRD**	
Rhipidura fuliginosa	**BIRD**	
Rhipidura leucophrys	**BIRD**	
Rostratula australis	**BIRD**	**EN**
Sericornis frontalis	**BIRD**	
Serinus canarius	**BIRD**	
Smicrornis brevirostris	**BIRD**	
Stagonopleura oculata	**BIRD**	
Stercorarius antarcticus	**BIRD**	
Sterna anaethetus subsp. *anaethetus*	**BIRD**	
Sterna bergii	**BIRD**	
Sterna caspia	**BIRD**	
Sterna dougallii	**BIRD**	**MI**
Sterna fuscata subsp. *nubilosa*	**BIRD**	
Sterna hybrida subsp. *javanica*	**BIRD**	
Sterna leucoptera	**BIRD**	

TAXON	CLASS	CONS
Sterna paradisaea	BIRD	
Sternula nereis	BIRD	
Sternula nereis subsp. *nereis*	BIRD	MI
Stictonetta naevosa	BIRD	
Strepera versicolor	BIRD	
Streptopelia chinensis	BIRD	
Streptopelia chinensis subsp. *tigrina*	BIRD	
Streptopelia senegalensis	BIRD	
Sturnus vulgaris	BIRD	
Sugomel niger	BIRD	
Sula serrator	BIRD	
Tachybaptus novaehollandiae	BIRD	
Tadorna radjah	BIRD	
Tadorna tadornoides	BIRD	
Taeniopygia guttata subsp. *castanotis*	BIRD	
Thalassarche carteri	BIRD	EN
Thalassarche chrysostoma	BIRD	VU
Thalassarche melanophris	BIRD	EN
Thalasseus bergii	BIRD	MI
Thinornis rubricollis	BIRD	P4
Threskiornis molucca	BIRD	
Threskiornis moluccus	BIRD	
Threskiornis spinicollis	BIRD	
Todiramphus sanctus	BIRD	
Todiramphus sanctus subsp. *sanctus*	BIRD	
Tribonyx ventralis	BIRD	
Trichoglossus haematodus	BIRD	
Trichoglossus moluccanus	BIRD	
Tringa brevipes	BIRD	MI, P4
Tringa glareola	BIRD	MI
Tringa guttifer	BIRD	
Tringa nebularia	BIRD	MI
Tringa stagnatilis	BIRD	MI
Turnix varia	BIRD	

TAXON	CLASS	CONS
Turnix varius	**BIRD**	
Turnix velox	**BIRD**	
Tyto alba	**BIRD**	
Vanellus miles	**BIRD**	
Vanellus tricolor	**BIRD**	
Xenus cinereus	**BIRD**	**MI**
Zanda baudinii	**BIRD**	**EN**
Zanda latirostris	**BIRD**	**EN**
Zosterops lateralis	**BIRD**	
Arctocephalus tropicalis	**MAMMAL**	**VU**
Austronomus australis	**MAMMAL**	
Balaenoptera physalus	**MAMMAL**	**EN**
Bos taurus	**MAMMAL**	
Canis lupus	**MAMMAL**	
Cercartetus concinnus	**MAMMAL**	
Chalinolobus gouldii	**MAMMAL**	
Chalinolobus morio	**MAMMAL**	
Dasyurus geoffroii	**MAMMAL**	**VU**
Equus caballus	**MAMMAL**	
Eubalaena australis	**MAMMAL**	**VU**
Felis catus	**MAMMAL**	
Funambulus pennanti	**MAMMAL**	
Globicephala macrorhynchus	**MAMMAL**	
Hydromys chrysogaster	**MAMMAL**	**P4**
Hydrurga leptonyx	**MAMMAL**	
Isoodon fusciventer	**MAMMAL**	**P4**
Macropus fuliginosus	**MAMMAL**	
Macrotis lagotis	**MAMMAL**	**VU**
Mus musculus	**MAMMAL**	
Mustela putorius	**MAMMAL**	
Myrmecobius fasciatus	**MAMMAL**	**EN**
Neophoca cinerea	**MAMMAL**	**VU**
Notamacropus irma	**MAMMAL**	**P4**
Nyctophilus geoffroyi	**MAMMAL**	

TAXON	CLASS	CONS
Nyctophilus gouldi	**MAMMAL**	
Nyctophilus major subsp. *major*	**MAMMAL**	
Oryctolagus cuniculus	**MAMMAL**	
Ovis aries	**MAMMAL**	
Ozimops kitcheneri	**MAMMAL**	
Phascogale tapoatafa subsp. *tapoatafa*	**MAMMAL**	
Phascogale tapoatafa subsp. *wambenger*	**MAMMAL**	**CD**
Pseudomys delicatulus	**MAMMAL**	
Rattus fuscipes	**MAMMAL**	
Rattus norvegicus	**MAMMAL**	
Rattus rattus	**MAMMAL**	
Setonix brachyurus	**MAMMAL**	**VU**
Sminthopsis griseoventer subsp. *griseoventer*	**MAMMAL**	
Sminthopsis murina	**MAMMAL**	
Stenella coeruleoalba	**MAMMAL**	
Sus scrofa	**MAMMAL**	
Tachyglossus aculeatus	**MAMMAL**	
Tadarida australis	**MAMMAL**	
Tarsipes rostratus	**MAMMAL**	
Trichosurus vulpecula	**MAMMAL**	
Tursiops aduncus	**MAMMAL**	
Tursiops truncatus	**MAMMAL**	
Vespadelus regulus	**MAMMAL**	
Vulpes vulpes	**MAMMAL**	
Acritoscincus trilineatus	**REPTILE**	
Acritoscincus trilineatus	**REPTILE**	
Anilios australis	**REPTILE**	
Antaresia stimsoni subsp. stimsoni	**REPTILE**	
Aprasia repens	**REPTILE**	
Brachyurophis fasciolatus subsp. *fasciolatus*	**REPTILE**	
Brachyurophis semifasciatus	**REPTILE**	
Caretta caretta	**REPTILE**	**EN**
Chelodina colliei	**REPTILE**	
Chelonia mydas	**REPTILE**	**VU**

TAXON	CLASS	CONS
Christinus marmoratus	**REPTILE**	
Cryptoblepharus buchananii	**REPTILE**	
Cryptoblepharus plagiocephalus	**REPTILE**	
Ctenophorus adelaidensis	**REPTILE**	
Ctenotus australis	**REPTILE**	
Ctenotus fallens	**REPTILE**	
Ctenotus gemmula	**REPTILE**	
Ctenotus impar	**REPTILE**	
Ctenotus labillardieri	**REPTILE**	
Ctenotus ora	**REPTILE**	**P3**
Cyclodomorphus celatus	**REPTILE**	
Delma fraseri	**REPTILE**	
Delma grayii	**REPTILE**	
Demansia psammophis	**REPTILE**	
Demansia psammophis subsp. *reticulata*	**REPTILE**	
Dendrelaphis punctulata	**REPTILE**	
Dermochelys coriacea	**REPTILE**	**VU**
Diplodactylus granariensis subsp. *granariensis*	**REPTILE**	
Diplodactylus lateroides	**REPTILE**	
Diplodactylus polyophthalmus	**REPTILE**	
Echiopsis curta	**REPTILE**	
Egernia kingii	**REPTILE**	
Egernia napoleonis	**REPTILE**	
Elapognathus coronatus	**REPTILE**	
Eretmochelys imbricata subsp. *bissa*	**REPTILE**	
Gehyra variegata	**REPTILE**	
Hemidactylus frenatus	**REPTILE**	
Hemiergis peronii	**REPTILE**	
Hemiergis quadrilineata	**REPTILE**	
Heteronotia binoei	**REPTILE**	
Hydrophis elegans	**REPTILE**	
Hydrophis ornatus	**REPTILE**	
Hydrophis platurus	**REPTILE**	
Lerista distinguenda	**REPTILE**	

TAXON	CLASS	CONS
Lerista elegans	REPTILE	
Lerista gerrardii	REPTILE	
Lerista lineata	REPTILE	P3
Lerista lineopunctulata	REPTILE	
Lerista praepedita	REPTILE	
Lialis burtonis	REPTILE	
Lissolepis luctuosa	REPTILE	
Lophognathus longirostris	REPTILE	
Lucasium alboguttatum	REPTILE	
Menetia greyii	REPTILE	
Morelia spilota subsp. *imbricata*	REPTILE	
Morethia lineoocellata	REPTILE	
Morethia obscura	REPTILE	
Neelaps bimaculatus	REPTILE	
Neelaps calonotos	REPTILE	P3
Notechis scutatus	REPTILE	
Parasuta gouldii	REPTILE	
Pletholax gracilis	REPTILE	
Pogona minor	REPTILE	
Pogona minor subsp. *minor*	REPTILE	
Pseudechis australis	REPTILE	
Pseudemydura umbrina	REPTILE	CR
Pseudonaja affinis	REPTILE	
Pseudonaja mengdeni	REPTILE	
Pseudonaja modesta	REPTILE	
Pygopus lepidopodus	REPTILE	
Ramphotyphlops australis	REPTILE	
Ramphotyphlops braminus	REPTILE	
Ramphotyphlops pinguis	REPTILE	
Ramphotyphlops waitii	REPTILE	
Simoselaps bertholdi	REPTILE	
Strophurus spinigerus	REPTILE	
Strophurus spinigerus subsp. *inornatus*	REPTILE	
Strophurus spinigerus subsp. *spinigerus*	REPTILE	

TAXON	CLASS	CONS
Tiliqua occipitalis	**REPTILE**	
Tiliqua rugosa	**REPTILE**	
Underwoodisaurus milii	**REPTILE**	
Varanus gouldii	**REPTILE**	
Varanus tristis	**REPTILE**	

Please note that *NatureMap and Dandjoo* data contains some inaccuracies.

Appendix D

Flora data

D-1 Naturemap and Dandjoo Database Search Flora Results

D-2 Flora species list by family

D-3 Flora likelihood of occurrence assessment guidelines

D-4 Flora likelihood of occurrence assessment

D–5 Significant Tree Data

Terrestrial Flora Nature Map Desktop Result for all Swan River Survey Area

TAXON	CLASS	CONS
Abutilon grandifolium	**DICOT**	
Acacia acuminata	**DICOT**	
Acacia applanata	**DICOT**	
Acacia barbinervis subsp. *barbinervis*	**DICOT**	
Acacia benthamii	**DICOT**	**P2**
Acacia blakelyi	**DICOT**	
Acacia cochlearis	**DICOT**	
Acacia consobrina	**DICOT**	
Acacia craspedocarpa	**DICOT**	
Acacia cyclops	**DICOT**	
Acacia dentifera	**DICOT**	
Acacia drewiana subsp. *drewiana*	**DICOT**	
Acacia drummondii subsp. *drummondii*	**DICOT**	
Acacia ericifolia	**DICOT**	
Acacia horridula	**DICOT**	**P3**
Acacia huegelii	**DICOT**	
Acacia incurva	**DICOT**	
Acacia iteaphylla	**DICOT**	
Acacia jibberdingensis	**DICOT**	
Acacia lasiocalyx	**DICOT**	
Acacia lasiocarpa	**DICOT**	**P1**
Acacia lasiocarpa var. *bracteolata long peduncle variant (G.J. Keighery 5026)*	**DICOT**	
Acacia lasiocarpa var. *lasiocarpa*	**DICOT**	
Acacia lasiocarpa var. *sedifolia*	**DICOT**	
Acacia littorea	**DICOT**	
Acacia longifolia	**DICOT**	
Acacia longifolia subsp. *longifolia*	**DICOT**	
Acacia longifolia subsp. *sophorae*	**DICOT**	
Acacia melanoxylon	**DICOT**	
Acacia microbotrya	**DICOT**	
Acacia nervosa	**DICOT**	
Acacia paradoxa	**DICOT**	
Acacia podalyriifolia	**DICOT**	

TAXON	CLASS	CONS
Acacia pulchella	**DICOT**	
Acacia pulchella var. *glaberrima*	**DICOT**	
Acacia pulchella var. *pulchella*	**DICOT**	
Acacia pycnocephala	**DICOT**	
Acacia restiacea	**DICOT**	
Acacia rostellifera	**DICOT**	
Acacia salicina	**DICOT**	
Acacia saligna	**DICOT**	
Acacia saligna subsp. *lindleyi*	**DICOT**	
Acacia saligna subsp. *saligna*	**DICOT**	
Acacia sessilis	**DICOT**	
Acacia stenoptera	**DICOT**	
Acacia subcaerulea	**DICOT**	
Acacia tetragonocarpa	**DICOT**	
Acacia trachyphloia	**DICOT**	
Acacia truncata	**DICOT**	
Acacia willdenowiana	**DICOT**	
Acacia xanthina	**DICOT**	
Acaena echinata	**DICOT**	
Acer negundo	**DICOT**	
Achillea millefolium	**DICOT**	
Acrotriche cordata	**DICOT**	
Actinotus glomeratus	**DICOT**	
Actinotus leucocephalus	**DICOT**	
Adenanthos barbiger	**DICOT**	
Adenanthos cygnorum	**DICOT**	
Adenanthos cygnorum subsp. *cygnorum*	**DICOT**	
Adenanthos obovatus	**DICOT**	
Aeonium arboreum	**DICOT**	
Aeonium haworthii	**DICOT**	
Ageratina adenophora	**DICOT**	
Agonis flexuosa	**DICOT**	
Agonis flexuosa var. *flexuosa*	**DICOT**	
Ailanthus altissima	**DICOT**	

TAXON	CLASS	CONS
Aizoon pubescens	**DICOT**	
Allocasuarina fraseriana	**DICOT**	
Allocasuarina huegeliana	**DICOT**	
Allocasuarina humilis	**DICOT**	
Allocasuarina lehmanniana subsp. *lehmanniana*	**DICOT**	
Allocasuarina microstachya	**DICOT**	
Alternanthera denticulata	**DICOT**	
Alternanthera nodiflora	**DICOT**	
Alyxia buxifolia	**DICOT**	
Amaranthus blitum	**DICOT**	
Amaranthus caudatus	**DICOT**	
Amaranthus cruentus	**DICOT**	
Amaranthus hybridus	**DICOT**	
Amaranthus lividus	**DICOT**	
Amaranthus powellii	**DICOT**	
Amaranthus viridis	**DICOT**	
Ambrosia psilostachya	**DICOT**	
Ammi majus	**DICOT**	
Amsinckia calycina	**DICOT**	
Amyema linophylla	**DICOT**	
Amyema linophylla subsp. *linophylla*	**DICOT**	
Amyema miquelii	**DICOT**	
Amyema preissii	**DICOT**	
Anagallis arvensis	**DICOT**	
Anagallis arvensis var. *caerulea*	**DICOT**	
Andersonia aristata	**DICOT**	
Andersonia gracilis	**DICOT**	**VU**
Andersonia involucrata	**DICOT**	
Andersonia lehmanniana	**DICOT**	
Angianthus cunninghamii	**DICOT**	
Angianthus micropodioides	**DICOT**	**P3**
Angianthus preissianus	**DICOT**	
Anisomeles farinacea	**DICOT**	
Anredera cordifolia	**DICOT**	

TAXON	CLASS	CONS
Anthocercis ilicifolia	**DICOT**	
Anthocercis ilicifolia subsp. *ilicifolia*	**DICOT**	
Anthocercis littorea	**DICOT**	
Anthotium junciforme	**DICOT**	
Aotus cordifolia	**DICOT**	
Aotus gracillima	**DICOT**	
Aotus procumbens	**DICOT**	
Aphanes arvensis	**DICOT**	
Apium annuum	**DICOT**	
Apium graveolens	**DICOT**	
Apium prostratum subsp. *prostratum var. prostratum*	**DICOT**	
Arctotheca calendula	**DICOT**	
Arctotheca populifolia	**DICOT**	
Arctotis stoechadifolia	**DICOT**	
Argemone albiflora subsp. albiflora	**DICOT**	
Argemone ochroleuca subsp. ochroleuca	**DICOT**	
Argyranthemum frutescens	**DICOT**	
Argyranthemum frutescens subsp. foeniculaceum	**DICOT**	
Astartea affinis	**DICOT**	
Astartea leptophylla	**DICOT**	
Astartea scoparia	**DICOT**	
Asteridea pulverulenta	**DICOT**	
Astroloma ciliatum	**DICOT**	
Astroloma foliosum	**DICOT**	
Astroloma macrocalyx	**DICOT**	
Astroloma microcalyx	**DICOT**	
Astroloma pallidum	**DICOT**	
Astroloma stomarrhena	**DICOT**	
Astroloma xerophyllum	**DICOT**	
Atriplex hypoleuca	**DICOT**	
Atriplex isatidea	**DICOT**	
Atriplex prostrata	**DICOT**	
Atriplex semibaccata	**DICOT**	
Auranticarpa rhombifolia	**DICOT**	

TAXON	CLASS	CONS
Babingtonia camphorosmae	**DICOT**	
Babingtonia pelloeae	**DICOT**	
Babingtonia urbana	**DICOT**	**P3**
Bacopa monnieri	**DICOT**	
Banksia armata var. armata	**DICOT**	
Banksia ashbyi	**DICOT**	
Banksia attenuata	**DICOT**	
Banksia dallanneyi	**DICOT**	
Banksia dallanneyi subsp. dallanneyi var. dallanneyi	**DICOT**	
Banksia fraseri var. fraseri	**DICOT**	
Banksia grandis	**DICOT**	
Banksia ilicifolia	**DICOT**	
Banksia incana	**DICOT**	
Banksia incana var. incana	**DICOT**	
Banksia littoralis	**DICOT**	
Banksia menziesii	**DICOT**	
Banksia nivea subsp. nivea	**DICOT**	
Banksia prionotes	**DICOT**	
Banksia pteridifolia subsp. vernalis	**DICOT**	**P3**
Banksia sceptrum	**DICOT**	
Banksia sessilis	**DICOT**	
Banksia sessilis var. cygnorum	**DICOT**	
Banksia sphaerocarpa	**DICOT**	
Banksia telmatiaea	**DICOT**	
Banksia undata var. undata	**DICOT**	
Banksia victoriae	**DICOT**	
Beaufortia elegans	**DICOT**	
Beaufortia squarrosa	**DICOT**	
Bellardia trixago	**DICOT**	
Bellardia viscosa	**DICOT**	
Berkheya rigida	**DICOT**	
Beyeria cinerea subsp. cinerea	**DICOT**	**P3**
Beyeria viscosa	**DICOT**	
Bidens pilosa	**DICOT**	

TAXON	CLASS	CONS
Billardiera fraseri	**DICOT**	
Billardiera fusiformis	**DICOT**	
Boronia alata	**DICOT**	
Boronia crenulata subsp. *crenulata* var. *crenulata*	**DICOT**	
Boronia crenulata subsp. *viminea*	**DICOT**	
Boronia cymosa	**DICOT**	
Boronia dichotoma	**DICOT**	
Boronia purdieana subsp. *purdieana*	**DICOT**	
Boronia ramosa	**DICOT**	
Boronia ramosa subsp. *anethifolia*	**DICOT**	
Boronia scabra subsp. *scabra*	**DICOT**	
Boronia tenuis	**DICOT**	**P4**
Bossiaea eriocarpa	**DICOT**	
Bossiaea modesta	**DICOT**	**P2**
Bossiaea ornata	**DICOT**	
Brachychiton acerifolius x discolor	**DICOT**	
Brachychiton populneus	**DICOT**	
Brachychiton populneus subsp. *populneus*	**DICOT**	
Brachyloma preissii	**DICOT**	
Brachyscome bellidioides	**DICOT**	
Brachyscome iberidifolia	**DICOT**	
Brachyscome pusilla	**DICOT**	
Brassica barrelieri subsp. *oxyrrhina*	**DICOT**	
Brassica fruticulosa	**DICOT**	
Brassica rapa	**DICOT**	
Brassica tournefortii	**DICOT**	
Brassica x napus	**DICOT**	
Brassica x napus x rapa	**DICOT**	
Buddleja dysophylla	**DICOT**	
Buddleja madagascariensis	**DICOT**	
Buglossoides arvensis	**DICOT**	
Byblis gigantea	**DICOT**	**P3**
Cakile maritima	**DICOT**	
Calandrinia brevipedata	**DICOT**	

TAXON	CLASS	CONS
Calandrinia calyptrata	**DICOT**	
Calandrinia corrigioloides	**DICOT**	
Calandrinia liniflora	**DICOT**	
Calceolaria tripartita	**DICOT**	
Callistemon citrinus	**DICOT**	
Callistemon linearis	**DICOT**	
Callistemon phoeniceus	**DICOT**	
Callitriche stagnalis	**DICOT**	
Calothamnus gilesii	**DICOT**	
Calothamnus graniticus	**DICOT**	
Calothamnus graniticus subsp. *leptophyllus*	**DICOT**	**P4**
Calothamnus hirsutus	**DICOT**	
Calothamnus homalophyllus	**DICOT**	
Calothamnus lateralis	**DICOT**	
Calothamnus macrocarpus	**DICOT**	**P2**
Calothamnus quadrifidus	**DICOT**	
Calothamnus quadrifidus subsp. *angustifolius*	**DICOT**	
Calothamnus quadrifidus subsp. *homalophyllus*	**DICOT**	
Calothamnus quadrifidus subsp. *quadrifidus*	**DICOT**	
Calothamnus rupestris	**DICOT**	
Calothamnus sanguineus	**DICOT**	
Calothamnus validus	**DICOT**	
Calycopeplus paucifolius	**DICOT**	
Calytrix angulata	**DICOT**	
Calytrix aurea	**DICOT**	
Calytrix flavescens	**DICOT**	
Calytrix flavescens x fraseri	**DICOT**	
Calytrix fraseri	**DICOT**	
Calytrix glutinosa	**DICOT**	
Calytrix leschenaultii	**DICOT**	
Calytrix sapphirina	**DICOT**	
Calytrix sylvana	**DICOT**	
Campsis radicans	**DICOT**	
Campsis x tagliabuana	**DICOT**	

TAXON	CLASS	CONS
Cannabis sativa	**DICOT**	
Capsella bursa-pastoris	**DICOT**	
Cardamine hirsuta	**DICOT**	
Cardamine occulta	**DICOT**	
Cardiospermum grandiflorum	**DICOT**	
Carduus pycnocephalus	**DICOT**	
Carpobrotus edulis	**DICOT**	
Carpobrotus virescens	**DICOT**	
Cassytha flava	**DICOT**	
Cassytha glabella	**DICOT**	
Cassytha glabella forma casuarinae	**DICOT**	
Cassytha pomiformis	**DICOT**	
Cassytha racemosa	**DICOT**	
Cassytha racemosa forma pilosa	**DICOT**	
Cassytha racemosa forma racemosa	**DICOT**	
Casuarina cunninghamiana	**DICOT**	
Casuarina equisetifolia	**DICOT**	
Casuarina glauca	**DICOT**	
Casuarina glauca x obesa	**DICOT**	
Casuarina obesa	**DICOT**	
Catha edulis	**DICOT**	
Centaurea calcitrapa	**DICOT**	
Centaurea melitensis	**DICOT**	
Centaurea solstitialis	**DICOT**	
Centaurium erythraea	**DICOT**	
Centaurium tenuiflorum	**DICOT**	
Centella asiatica	**DICOT**	
Centipeda cunninghamii	**DICOT**	
Centranthus macrosiphon	**DICOT**	
Cerastium glomeratum	**DICOT**	
Chamaecytisus palmensis	**DICOT**	
Chamelaucium axillare x uncinatum	**DICOT**	
Chamelaucium sp. Winchester (C. Chapman s.n. PERTH 07879180)	**DICOT**	
Chamelaucium uncinatum	**DICOT**	

TAXON	CLASS	CONS
Cheiranthera preissiana	**DICOT**	
Chenopodium album	**DICOT**	
Chenopodium giganteum	**DICOT**	
Chenopodium glaucum	**DICOT**	
Chenopodium macrospermum	**DICOT**	
Chenopodium murale	**DICOT**	
Chondrilla juncea	**DICOT**	
Chorizema dicksonii	**DICOT**	
Chrysanthemoides monilifera subsp. *monilifera*	**DICOT**	
Chrysocoma coma-aurea	**DICOT**	
Chthonocephalus pseudevax	**DICOT**	
Cicendia filiformis	**DICOT**	
Cicer arietinum	**DICOT**	
Cichorium intybus	**DICOT**	
Cinnamomum camphora	**DICOT**	
Cirsium arvense var. *arvense*	**DICOT**	
Cirsium vulgare	**DICOT**	
Citrullus lanatus	**DICOT**	
Clematis linearifolia	**DICOT**	
Clematis pubescens	**DICOT**	
Coleonema pulchellum	**DICOT**	
Comesperma calymega	**DICOT**	
Comesperma ciliatum	**DICOT**	
Comesperma confertum	**DICOT**	
Comesperma flavum	**DICOT**	
Comesperma integerrimum	**DICOT**	
Comesperma polygaloides	**DICOT**	
Comesperma virgatum	**DICOT**	
Commersonia corniculata	**DICOT**	
Conospermum acerosum subsp. *acerosum*	**DICOT**	
Conospermum canaliculatum subsp. *canaliculatum*	**DICOT**	
Conospermum capitatum subsp. *glabratum*	**DICOT**	
Conospermum huegelii	**DICOT**	
Conospermum incurvum	**DICOT**	

TAXON	CLASS	CONS
Conospermum stoechadis	**DICOT**	
Conospermum stoechadis subsp. *sclerophyllum*	**DICOT**	
Conospermum stoechadis subsp. *stoechadis*	**DICOT**	
Conospermum triplinervium	**DICOT**	
Conospermum triplinervium x undulatum	**DICOT**	
Conospermum undulatum	**DICOT**	**VU**
Conospermum undulatum hybrid	**DICOT**	
Conostephium minus	**DICOT**	
Conostephium pendulum	**DICOT**	
Conostephium preissii	**DICOT**	
Conothamnus trinervis	**DICOT**	
Convolvulus sabatius subsp. *mauritanicus*	**DICOT**	
Conyza albida	**DICOT**	
Conyza bonariensis	**DICOT**	
Conyza canadensis var. *canadensis*	**DICOT**	
Conyza parva	**DICOT**	
Conyza sumatrensis	**DICOT**	
Corrigiola litoralis	**DICOT**	
Corymbia calophylla	**DICOT**	
Corymbia calophylla x ficifolia	**DICOT**	
Corymbia citriodora	**DICOT**	
Corymbia maculata	**DICOT**	
Cosmos bipinnatus	**DICOT**	
Cotoneaster pannosus	**DICOT**	
Cotula australis	**DICOT**	
Cotula bipinnata	**DICOT**	
Cotula coronopifolia	**DICOT**	
Cotula cotuloides	**DICOT**	
Cotula turbinata	**DICOT**	
Crassocephalum crepidioides	**DICOT**	
Crassula alata	**DICOT**	
Crassula alata var. *alata*	**DICOT**	
Crassula arborescens	**DICOT**	
Crassula colorata	**DICOT**	

TAXON	CLASS	CONS
Crassula colorata var. *acuminata*	**DICOT**	
Crassula colorata var. *colorata*	**DICOT**	
Crassula decumbens	**DICOT**	
Crassula decumbens var. *decumbens*	**DICOT**	
Crassula exserta	**DICOT**	
Crassula glomerata	**DICOT**	
Crassula natans	**DICOT**	
Crassula natans var. *minus*	**DICOT**	
Crassula thunbergiana	**DICOT**	
Crassula thunbergiana subsp. *thunbergiana*	**DICOT**	
Crepis foetida subsp. *foetida*	**DICOT**	
Cristonia biloba subsp. *biloba*	**DICOT**	
Croninia kingiana	**DICOT**	
Cryptandra arbutiflora	**DICOT**	
Cryptandra arbutiflora var. *arbutiflora*	**DICOT**	
Cryptandra arbutiflora var. *tubulosa*	**DICOT**	
Cryptandra humilis	**DICOT**	
Cryptandra mutila	**DICOT**	
Cryptandra scoparia	**DICOT**	
Cuphea hyssopifolia	**DICOT**	
Cuscuta campestris	**DICOT**	
Cuscuta epithymum	**DICOT**	
Cuscuta planiflora	**DICOT**	
Cyclospermum leptophyllum	**DICOT**	
Cymbalaria muralis subsp. *muralis*	**DICOT**	
Dampiera alata	**DICOT**	
Dampiera linearis	**DICOT**	
Dampiera pedunculata	**DICOT**	
Dampiera trigona	**DICOT**	
Dampiera triloba	**DICOT**	**P3**
Darwinia citriodora	**DICOT**	
Datura innoxia	**DICOT**	
Datura metel	**DICOT**	
Datura stramonium	**DICOT**	

TAXON	CLASS	CONS
Datura wrightii	**DICOT**	
Daucus glochidiatus	**DICOT**	
Daviesia angulata	**DICOT**	
Daviesia brachyphylla	**DICOT**	
Daviesia decurrens	**DICOT**	
Daviesia decurrens subsp. *decurrens*	**DICOT**	
Daviesia divaricata	**DICOT**	
Daviesia divaricata subsp. *divaricata*	**DICOT**	
Daviesia hakeoides subsp. *hakeoides*	**DICOT**	
Daviesia horrida	**DICOT**	
Daviesia incrassata subsp. *incrassata*	**DICOT**	
Daviesia nudiflora subsp. *nudiflora*	**DICOT**	
Daviesia pedunculata	**DICOT**	
Daviesia physodes	**DICOT**	
Daviesia podophylla	**DICOT**	
Daviesia triflora	**DICOT**	
Dichondra repens	**DICOT**	
Dicrastylis micrantha	**DICOT**	**P3**
Dicrastylis soliparma	**DICOT**	
Dillwynia cinerascens	**DICOT**	
Dillwynia dillwynioides	**DICOT**	**P3**
Dillwynia sp. A Perth Flora (R. Coveny 8036)	**DICOT**	
Diplolaena angustifolia	**DICOT**	
Diplopeltis huegelii	**DICOT**	
Diplopeltis huegelii subsp. *huegelii*	**DICOT**	
Diplopeltis huegelii subsp. *lehmannii*	**DICOT**	
Diplopeltis huegelii var. *huegelii*	**DICOT**	
Diplotaxis muralis	**DICOT**	
Diplotaxis tenuifolia	**DICOT**	
Dischisma arenarium	**DICOT**	
Dischisma capitatum	**DICOT**	
Distimake dissectus	**DICOT**	
Dittrichia graveolens	**DICOT**	
Dodonaea aptera	**DICOT**	

TAXON	CLASS	CONS
Dodonaea hackettiana	**DICOT**	**P4**
Dodonaea sinuolata subsp. *sinuolata*	**DICOT**	
Drosanthemum candens	**DICOT**	
Drosera bulbigena	**DICOT**	
Drosera drummondii	**DICOT**	
Drosera erythrorhiza	**DICOT**	
Drosera erythrorhiza subsp. *erythrorhiza*	**DICOT**	
Drosera gigantea	**DICOT**	
Drosera glanduligera	**DICOT**	
Drosera helodes	**DICOT**	
Drosera heterophylla	**DICOT**	
Drosera hirsuta	**DICOT**	
Drosera macrantha	**DICOT**	
Drosera macrantha subsp. *macrantha*	**DICOT**	
Drosera menziesii	**DICOT**	
Drosera menziesii subsp. *penicillaris*	**DICOT**	
Drosera micrantha	**DICOT**	
Drosera microphylla	**DICOT**	
Drosera minutiflora	**DICOT**	
Drosera neesii	**DICOT**	
Drosera nitidula	**DICOT**	
Drosera occidentalis	**DICOT**	**P4**
Drosera paleacea subsp. *paleacea*	**DICOT**	
Drosera pallida	**DICOT**	
Drosera platystigma	**DICOT**	
Drosera porrecta	**DICOT**	
Drosera pulchella	**DICOT**	
Drosera ramellosa	**DICOT**	
Drosera rosulata	**DICOT**	
Drosera sp. Branched styles (S.C. Coffey 193)	**DICOT**	
Drosera sp. indet.	**DICOT**	
Drosera spilos	**DICOT**	
Drosera stolonifera	**DICOT**	
Drosera subhirtella	**DICOT**	

TAXON	CLASS	CONS
Drosera tubaestylis	**DICOT**	
Drosera zonaria	**DICOT**	
Dryandra armata	**DICOT**	
Dryandra lindleyana subsp. lindleyana var. lindleyana	**DICOT**	
Dryandra nivea	**DICOT**	
Dryandra sessilis	**DICOT**	
Dysphania ambrosioides	**DICOT**	
Dysphania glomulifera subsp. glomulifera	**DICOT**	
Dysphania multifida	**DICOT**	
Ecballium elaterium	**DICOT**	
Echium plantagineum	**DICOT**	
Eclipta prostrata	**DICOT**	
Elatine gratioloides	**DICOT**	
Epilobium billardiereanum subsp. cinereum	**DICOT**	
Epilobium billardiereanum subsp. intermedium	**DICOT**	
Epilobium ciliatum	**DICOT**	
Epilobium hirtigerum	**DICOT**	
Epilobium tetragonum	**DICOT**	
Epilobium tetragonum subsp. tetragonum	**DICOT**	
Eremaea asterocarpa	**DICOT**	
Eremaea asterocarpa subsp. asterocarpa	**DICOT**	
Eremaea fimbriata	**DICOT**	
Eremaea pauciflora	**DICOT**	
Eremaea pauciflora subsp. pauciflora	**DICOT**	
Eremaea pauciflora var. pauciflora	**DICOT**	
Eremophila glabra	**DICOT**	
Eremophila glabra subsp. albicans	**DICOT**	
Eremophila glabra subsp. chlorella	**DICOT**	**EN**
Erigeron karvinskianus	**DICOT**	
Eriostemon spicatus	**DICOT**	
Erodium botrys	**DICOT**	
Erodium cicutarium	**DICOT**	
Erodium cygnorum	**DICOT**	
Erodium moschatum	**DICOT**	

TAXON	CLASS	CONS
Eryngium pinnatifidum	**DICOT**	
Eryngium pinnatifidum subsp. *palustre*	**DICOT**	**P3**
Eryngium pinnatifidum subsp. *Palustre (G.J. Keighery 13459)*	**DICOT**	**P3**
Eryngium sp. Subdecumbens (G.J. Keighery 5390)	**DICOT**	
Erythrina crista-galli	**DICOT**	
Erythrina x sykesii	**DICOT**	
Eucalyptus arachnaea subsp. *arachnaea*	**DICOT**	
Eucalyptus camaldulensis subsp. *camaldulensis*	**DICOT**	
Eucalyptus camaldulensis subsp. *obtusa*	**DICOT**	
Eucalyptus cladocalyx subsp. *petila*	**DICOT**	
Eucalyptus decipiens	**DICOT**	
Eucalyptus educta	**DICOT**	**P2**
Eucalyptus erythrocorys	**DICOT**	
Eucalyptus foecunda	**DICOT**	
Eucalyptus gomphocephala	**DICOT**	
Eucalyptus lansdowneana	**DICOT**	
Eucalyptus marginata	**DICOT**	
Eucalyptus marginata subsp. *marginata*	**DICOT**	
Eucalyptus petrensis	**DICOT**	
Eucalyptus rudis	**DICOT**	
Eucalyptus rudis subsp. *rudis*	**DICOT**	
Eucalyptus todtiana	**DICOT**	
Eucalyptus utilis	**DICOT**	
Eucalyptus x mundijongensis	**DICOT**	**P1**
Euchilopsis linearis	**DICOT**	
Euphorbia arborea	**DICOT**	
Euphorbia cyathophora	**DICOT**	
Euphorbia dendroides	**DICOT**	
Euphorbia helioscopia	**DICOT**	
Euphorbia hyssopifolia	**DICOT**	
Euphorbia lathyris	**DICOT**	
Euphorbia lathyrus	**DICOT**	
Euphorbia maculata	**DICOT**	
Euphorbia marginata	**DICOT**	

TAXON	CLASS	CONS
Euphorbia paralias	**DICOT**	
Euphorbia peplus	**DICOT**	
Euphorbia prostrata	**DICOT**	
Euphorbia terracina	**DICOT**	
Eutaxia virgata	**DICOT**	
Exocarpos sparteus	**DICOT**	
Fallopia convolvulus	**DICOT**	
Ficus carica	**DICOT**	
Ficus macrophylla	**DICOT**	
Foeniculum vulgare	**DICOT**	
Frankenia pauciflora	**DICOT**	
Fumaria bastardii	**DICOT**	
Fumaria capreolata	**DICOT**	
Fumaria densiflora	**DICOT**	
Fumaria muralis	**DICOT**	
Fumaria muralis subsp. *muralis*	**DICOT**	
Galinsoga parviflora	**DICOT**	
Galium aparine	**DICOT**	
Galium divaricatum	**DICOT**	
Galium murale	**DICOT**	
Gamochaeta coarctata	**DICOT**	
Gamochaeta pensylvanica	**DICOT**	
Gastrolobium acutum	**DICOT**	
Gastrolobium capitatum	**DICOT**	
Gastrolobium celsianum	**DICOT**	
Gastrolobium ebracteolatum	**DICOT**	
Gastrolobium linearifolium	**DICOT**	
Gastrolobium nervosum	**DICOT**	
Gastrolobium praemorsum	**DICOT**	
Gastrolobium spinosum	**DICOT**	
Gazania linearis	**DICOT**	
Geranium molle	**DICOT**	
Geranium solanderi	**DICOT**	
Glandularia aristigera	**DICOT**	

TAXON	CLASS	CONS
Glebionis coronaria	**DICOT**	
Gleditsia triacanthos	**DICOT**	
Glischrocaryon angustifolium	**DICOT**	
Glischrocaryon aureum	**DICOT**	
Gnephosis angianthoides	**DICOT**	
Gnephosis drummondii	**DICOT**	
Gnephosis tenuissima	**DICOT**	
Gomphocarpus fruticosus	**DICOT**	
Gomphocarpus physocarpus	**DICOT**	
Gompholobium aristatum	**DICOT**	
Gompholobium confertum	**DICOT**	
Gompholobium polymorphum	**DICOT**	
Gompholobium scabrum	**DICOT**	
Gompholobium shuttleworthii	**DICOT**	
Gompholobium tomentosum	**DICOT**	
Gonocarpus nodulosus	**DICOT**	
Gonocarpus paniculatus	**DICOT**	
Gonocarpus pithyoides	**DICOT**	
Goodenia incana	**DICOT**	
Goodenia micrantha	**DICOT**	
Goodenia pinifolia	**DICOT**	
Goodenia pulchella	**DICOT**	
Goodenia pulchella subsp. *Coastal Plain A (M. Hislop 634)*	**DICOT**	
Goodenia pulchella subsp. *Coastal Plain B (L.W. Sage 2336)*	**DICOT**	
Goodenia scapigera	**DICOT**	
Grammatotheca bergiana var. *bergiana*	**DICOT**	
Gratiola peruviana	**DICOT**	
Gratiola pubescens	**DICOT**	
Grevillea bipinnatifida	**DICOT**	
Grevillea bipinnatifida subsp. *bipinnatifida*	**DICOT**	
Grevillea crithmifolia	**DICOT**	
Grevillea curviloba subsp. *incurva*	**DICOT**	**EN**
Grevillea endlicheriana	**DICOT**	
Grevillea manglesii subsp. *manglesii*	**DICOT**	**P2**

TAXON	CLASS	CONS
Grevillea manglesii subsp. *ornithopoda*	**DICOT**	
Grevillea obtusifolia	**DICOT**	
Grevillea pilulifera	**DICOT**	
Grevillea preissii subsp. *preissii*	**DICOT**	
Grevillea synapheae subsp. *synapheae*	**DICOT**	
Grevillea thelemanniana	**DICOT**	**CR**
Grevillea thelemanniana subsp. *preissii*	**DICOT**	
Grevillea vestita	**DICOT**	
Grevillea vestita subsp. *vestita*	**DICOT**	
Guichenotia sarotes	**DICOT**	
Gyrostemon ramulosus	**DICOT**	
Hakea bucculenta	**DICOT**	
Hakea candolleana	**DICOT**	
Hakea ceratophylla	**DICOT**	
Hakea conchifolia	**DICOT**	
Hakea costata	**DICOT**	
Hakea erinacea	**DICOT**	
Hakea incrassata	**DICOT**	
Hakea lissocarpha	**DICOT**	
Hakea myrtoides	**DICOT**	
Hakea petiolaris	**DICOT**	
Hakea prostrata	**DICOT**	
Hakea ruscifolia	**DICOT**	
Hakea sp. Eastern coastal plain (G.J. Keighery 8014)	**DICOT**	
Hakea sulcata	**DICOT**	
Hakea trifurcata	**DICOT**	
Hakea undulata	**DICOT**	
Hakea varia	**DICOT**	
Haloragis scoparia	**DICOT**	**P1**
Hardenbergia comptoniana	**DICOT**	
Hedypnois rhagadioloides	**DICOT**	
Hedypnois rhagadioloides subsp. *cretica*	**DICOT**	
Helianthus annuus	**DICOT**	
Helianthus debilis subsp. *cucumerifolius*	**DICOT**	

TAXON	CLASS	CONS
Helianthus tuberosus	**DICOT**	
Helichrysum cordatum	**DICOT**	
Helichrysum luteoalbum	**DICOT**	
Heliophila pusilla	**DICOT**	
Heliotropium amplexicaule	**DICOT**	
Heliotropium curassavicum	**DICOT**	
Helminthotheca echioides	**DICOT**	
Hemiandra glabra	**DICOT**	
Hemiandra linearis	**DICOT**	
Hemiandra pungens	**DICOT**	
Hemiandra pungens var. *glabra*	**DICOT**	
Hemiandra sp. Jurien (B.J. Conn & M.E. Tozer BJC 3885)	**DICOT**	
Hemigenia incana	**DICOT**	
Hemigenia sericea	**DICOT**	
Hemiphora bartlingii	**DICOT**	
Hemiphora uncinata	**DICOT**	
Hibbertia amplexicaulis	**DICOT**	
Hibbertia aurea	**DICOT**	
Hibbertia commutata	**DICOT**	
Hibbertia cuneiformis	**DICOT**	
Hibbertia diamesogenos	**DICOT**	
Hibbertia huegelii	**DICOT**	
Hibbertia huegelii complex	**DICOT**	
Hibbertia hypericoides	**DICOT**	
Hibbertia hypericoides subsp. *hypericoides*	**DICOT**	
Hibbertia perfoliata	**DICOT**	
Hibbertia racemosa	**DICOT**	
Hibbertia spicata subsp. *leptotheca*	**DICOT**	
Hibbertia stellaris	**DICOT**	
Hibbertia striata	**DICOT**	
Hibbertia subvaginata	**DICOT**	
Hibbertia vaginata	**DICOT**	
Hibiscus diversifolius	**DICOT**	
Hibiscus diversifolius subsp. *diversifolius*	**DICOT**	

TAXON	CLASS	CONS
Hibiscus mutabilis	**DICOT**	
Hibiscus tridactylites	**DICOT**	
Homalanthus novo-guineensis	**DICOT**	
Homalosciadium homalocarpum	**DICOT**	
Homalospermum firmum	**DICOT**	
Hovea pungens	**DICOT**	
Hovea trisperma	**DICOT**	
Hovea trisperma var. *trisperma*	**DICOT**	
Hyalosperma cotula	**DICOT**	
Hybanthus calycinus	**DICOT**	
Hydrocotyle alata	**DICOT**	
Hydrocotyle blepharocarpa	**DICOT**	
Hydrocotyle bonariensis	**DICOT**	
Hydrocotyle callicarpa	**DICOT**	
Hydrocotyle diantha	**DICOT**	
Hydrocotyle hispidula	**DICOT**	
Hydrocotyle lemnoides	**DICOT**	**P4**
Hydrocotyle pilifera var. *glabrata*	**DICOT**	
Hydrocotyle ranunculoides	**DICOT**	
Hydrocotyle scutellifera	**DICOT**	
Hydrocotyle striata	**DICOT**	**P1**
Hydrocotyle tetragonocarpa	**DICOT**	
Hypericum canariense	**DICOT**	
Hypericum gramineum	**DICOT**	
Hypocalymma angustifolium	**DICOT**	
Hypocalymma angustifolium subsp. Swan Coastal Plain (G.J. Keighery 16777)	**DICOT**	
Hypocalymma robustum	**DICOT**	
Hypochaeris glabra	**DICOT**	
Hypochaeris radicata	**DICOT**	
Ipomoea batatas	**DICOT**	
Ipomoea cairica	**DICOT**	
Ipomoea indica	**DICOT**	
Isopogon asper	**DICOT**	
Isopogon drummondii	**DICOT**	

TAXON	CLASS	CONS
Isopogon dubius	**DICOT**	
Isopogon sphaerocephalus	**DICOT**	
Isotoma hypocrateriformis	**DICOT**	
Isotoma pusilla	**DICOT**	
Isotoma scapigera	**DICOT**	
Isotropis cuneifolia	**DICOT**	
Isotropis cuneifolia subsp. *cuneifolia*	**DICOT**	
Ixiolaena viscosa	**DICOT**	
Jacksonia angulata	**DICOT**	
Jacksonia densiflora	**DICOT**	
Jacksonia floribunda	**DICOT**	
Jacksonia furcellata	**DICOT**	
Jacksonia gracillima	**DICOT**	**P3**
Jacksonia lehmannii	**DICOT**	
Jacksonia restioides	**DICOT**	
Jacksonia sericea	**DICOT**	**P4**
Jacksonia sternbergiana	**DICOT**	
Kennedia coccinea	**DICOT**	
Kennedia prostrata	**DICOT**	
Kennedia rubicunda	**DICOT**	
Kennedia stirlingii	**DICOT**	
Kickxia elatine subsp. *elatine*	**DICOT**	
Kickxia spuria	**DICOT**	
Kunzea glabrescens	**DICOT**	
Kunzea micrantha	**DICOT**	
Kunzea micrantha subsp. *micrantha*	**DICOT**	
Kunzea micrantha subsp. *petiolata*	**DICOT**	
Labichea lanceolata	**DICOT**	
Labichea punctata	**DICOT**	
Lablab purpureus	**DICOT**	
Lachnostachys verbascifolia var. *verbascifolia*	**DICOT**	
Lactuca saligna	**DICOT**	
Lactuca serriola	**DICOT**	
Lactuca serriola forma serriola	**DICOT**	

TAXON	CLASS	CONS
Lagenophora huegelii	**DICOT**	
Lagunaria patersonia	**DICOT**	
Lambertia multiflora	**DICOT**	
Lambertia multiflora var. *darlingensis*	**DICOT**	
Lantana camara	**DICOT**	
Lantana camara var. *camara*	**DICOT**	
Lasiopetalum bracteatum	**DICOT**	**P4**
Lasiopetalum glabratum	**DICOT**	
Lasiopetalum glutinosum subsp. *glutinosum*	**DICOT**	
Lasiopetalum membranaceum	**DICOT**	**P3**
Lathyrus tingitanus	**DICOT**	
Latrobea tenella	**DICOT**	
Lavandula dentata var. *candicans*	**DICOT**	
Lawrencella rosea	**DICOT**	
Lawrencia spicata	**DICOT**	
Lawrencia squamata	**DICOT**	
Lechenaultia biloba	**DICOT**	
Lechenaultia expansa	**DICOT**	
Lechenaultia floribunda	**DICOT**	
Lechenaultia linarioides	**DICOT**	
Leonotis leonurus	**DICOT**	
Leonotis nepetifolia	**DICOT**	
Leontodon rhagadioloides	**DICOT**	
Leontodon saxatilis	**DICOT**	
Lepidium didymum	**DICOT**	
Lepidium pseudohyssopifolium	**DICOT**	**P1**
Lepidium rotundum	**DICOT**	
Leptomeria empetriformis	**DICOT**	
Leptomeria pauciflora	**DICOT**	
Leptomeria preissiana	**DICOT**	
Leptospermum continentale	**DICOT**	
Leptospermum erubescens	**DICOT**	
Leptospermum laevigatum	**DICOT**	
Leptospermum spinescens	**DICOT**	

TAXON	CLASS	CONS
Leucaena leucocephala	**DICOT**	
Leucophyta brownii	**DICOT**	
Leucopogon aff. nutans	**DICOT**	
Leucopogon australis	**DICOT**	
Leucopogon conostephioides	**DICOT**	
Leucopogon glaucifolius	**DICOT**	
Leucopogon hirsutus	**DICOT**	
Leucopogon oliganthus	**DICOT**	
Leucopogon oxycedrus	**DICOT**	
Leucopogon parviflorus	**DICOT**	
Leucopogon polymorphus	**DICOT**	
Leucopogon propinquus	**DICOT**	
Leucopogon pulchellus	**DICOT**	
Leucopogon racemulosus	**DICOT**	
Leucopogon sprengelioides	**DICOT**	
Leucopogon squarrosus subsp. squarrosus	**DICOT**	
Leucopogon strictus	**DICOT**	
Leucopogon tenuis	**DICOT**	
Leucopogon verticillatus	**DICOT**	
Levenhookia preissii	**DICOT**	**P1**
Levenhookia pusilla	**DICOT**	
Levenhookia stipitata	**DICOT**	
Limonium hyblaeum	**DICOT**	
Linaria maroccana	**DICOT**	
Linum trigynum	**DICOT**	
Linum usitatissimum	**DICOT**	
Liparophyllum capitatum	**DICOT**	
Lobelia anceps	**DICOT**	
Lobelia gibbosa	**DICOT**	
Lobelia heterophylla	**DICOT**	
Lobelia rhombifolia	**DICOT**	
Lobelia rhytidosperma	**DICOT**	
Lobelia tenuior	**DICOT**	
Lobularia maritima	**DICOT**	

TAXON	CLASS	CONS
Logania vaginalis	**DICOT**	
Lotus angustissimus	**DICOT**	
Lotus hispidus	**DICOT**	
Lotus subbiflorus	**DICOT**	
Lotus uliginosus	**DICOT**	
Ludwigia repens	**DICOT**	
Lupinus angustifolius	**DICOT**	
Lupinus cosentinii	**DICOT**	
Lupinus luteus	**DICOT**	
Lycium ferocissimum	**DICOT**	
Lysiana casuarinae	**DICOT**	
Lysimachia arvensis	**DICOT**	
Lysimachia minima	**DICOT**	
Lysinema ciliatum	**DICOT**	
Lysinema elegans	**DICOT**	
Lysinema pentapetalum	**DICOT**	
Lythrum hyssopifolia	**DICOT**	
Lythrum junceum	**DICOT**	
Macarthuria australis	**DICOT**	
Macarthuria keigheryi	**DICOT**	**EN**
Macroptilium atropurpureum	**DICOT**	
Malleostemon tuberculatus	**DICOT**	
Malva arborea	**DICOT**	
Malva parviflora	**DICOT**	
Malva pseudolavatera	**DICOT**	
Malvaviscus arboreus	**DICOT**	
Marianthus erubescens	**DICOT**	
Matthiola incana	**DICOT**	
Mauranthemum paludosum	**DICOT**	
Medicago arabica	**DICOT**	
Medicago laciniata	**DICOT**	
Medicago littoralis	**DICOT**	
Medicago minima	**DICOT**	
Medicago polymorpha	**DICOT**	

TAXON	CLASS	CONS
Medicago sativa	**DICOT**	
Meionectes brownii	**DICOT**	
Melaleuca acerosa	**DICOT**	
Melaleuca acutifolia	**DICOT**	
Melaleuca armillaris subsp. armillaris	**DICOT**	
Melaleuca brevifolia	**DICOT**	
Melaleuca calothamnoides	**DICOT**	
Melaleuca cardiophylla	**DICOT**	
Melaleuca citrina	**DICOT**	
Melaleuca cuticularis	**DICOT**	
Melaleuca fulgens subsp. *fulgens*	**DICOT**	
Melaleuca huegelii	**DICOT**	
Melaleuca huegelii subsp. *huegelii*	**DICOT**	
Melaleuca incana subsp. *incana*	**DICOT**	
Melaleuca lanceolata	**DICOT**	
Melaleuca lateritia	**DICOT**	
Melaleuca linariifolia	**DICOT**	
Melaleuca megacephala	**DICOT**	
Melaleuca nervosa	**DICOT**	
Melaleuca nesophila	**DICOT**	
Melaleuca osullivanii	**DICOT**	
Melaleuca parviceps	**DICOT**	
Melaleuca pauciflora	**DICOT**	
Melaleuca pentagona var. *pentagona*	**DICOT**	
Melaleuca preissiana	**DICOT**	
Melaleuca quinquenervia	**DICOT**	
Melaleuca rhaphiophylla	**DICOT**	
Melaleuca ryeae	**DICOT**	
Melaleuca scabra	**DICOT**	
Melaleuca seriata	**DICOT**	
Melaleuca systena	**DICOT**	
Melaleuca teretifolia	**DICOT**	
Melaleuca thymoides	**DICOT**	
Melaleuca trichophylla	**DICOT**	

TAXON	CLASS	CONS
Melaleuca viminalis	**DICOT**	**P2**
Melaleuca viminea	**DICOT**	
Melaleuca viminea subsp. *viminea*	**DICOT**	
Melia azedarach	**DICOT**	
Melilotus albus	**DICOT**	
Melilotus indicus	**DICOT**	
Mentha spicata	**DICOT**	
Mentha x piperita var. *citrata*	**DICOT**	
Millotia myosotidifolia	**DICOT**	
Millotia tenuifolia	**DICOT**	
Minuartia mediterranea	**DICOT**	
Mirabilis jalapa	**DICOT**	
Mirbelia floribunda	**DICOT**	
Mirbelia spinosa	**DICOT**	
Misopates orontium	**DICOT**	
Mitrasacme paradoxa	**DICOT**	
Moenchia erecta	**DICOT**	
Momordica balsamina	**DICOT**	
Momordica charantia	**DICOT**	
Monoculus monstrosus	**DICOT**	
Monopsis debilis var. *depressa*	**DICOT**	
Monotaxis grandiflora	**DICOT**	
Monotaxis grandiflora var. *grandiflora*	**DICOT**	
Monotaxis occidentalis	**DICOT**	
Morus alba	**DICOT**	
Muehlenbeckia polybotrya	**DICOT**	
Myoporum caprarioides	**DICOT**	
Myoporum insulare	**DICOT**	
Myriocephalus occidentalis	**DICOT**	
Myriophyllum aquaticum	**DICOT**	
Myriophyllum crispatum	**DICOT**	
Myriophyllum tillaeoides	**DICOT**	
Needhamiella pumilio	**DICOT**	
Nemcia capitata	**DICOT**	

TAXON	CLASS	CONS
Nerium oleander	**DICOT**	
Nicandra physalodes	**DICOT**	
Nicotiana glauca	**DICOT**	
Nuytsia floribunda	**DICOT**	
Nymphaea odorata	**DICOT**	
Ocimum americanum	**DICOT**	
Oenothera affinis	**DICOT**	
Oenothera drummondii	**DICOT**	
Oenothera drummondii subsp. *drummondii*	**DICOT**	
Oenothera glazioviana	**DICOT**	
Oenothera jamesii	**DICOT**	
Oenothera laciniata	**DICOT**	
Oenothera mollissima	**DICOT**	
Oenothera speciosa	**DICOT**	
Oenothera stricta	**DICOT**	
Oenothera stricta subsp. *stricta*	**DICOT**	
Olax benthamiana	**DICOT**	
Olax scalariformis	**DICOT**	
Olea europaea	**DICOT**	
Olea europaea subsp. *europaea*	**DICOT**	
Olearia axillaris	**DICOT**	
Olearia elaeophila	**DICOT**	
Olearia paucidentata	**DICOT**	
Olearia rudis	**DICOT**	
Olearia sp. Kennedy Range (G. Byrne 66*)*	**DICOT**	
Opercularia apiciflora	**DICOT**	
Opercularia vaginata	**DICOT**	
Opuntia monacantha	**DICOT**	
Ornduffia albiflora	**DICOT**	
Ornduffia submersa	**DICOT**	**P4**
Ornithopus compressus	**DICOT**	
Ornithopus pinnatus	**DICOT**	
Ornithopus sativus	**DICOT**	
Orobanche minor	**DICOT**	

TAXON	CLASS	CONS
Osteospermum clandestinum	**DICOT**	
Osteospermum ecklonis	**DICOT**	
Oxalis bowiei	**DICOT**	
Oxalis caprina	**DICOT**	
Oxalis corniculata	**DICOT**	
Oxalis debilis var. *corymbosa*	**DICOT**	
Oxalis glabra	**DICOT**	
Oxalis perennans	**DICOT**	
Oxalis pes-caprae	**DICOT**	
Oxalis purpurea	**DICOT**	
Oxalis violacea	**DICOT**	
Ozothamnus cordatus	**DICOT**	
Papaver rhoeas	**DICOT**	
Papaver somniferum	**DICOT**	
Paraserianthes lophantha	**DICOT**	
Paraserianthes lophantha subsp. *lophantha*	**DICOT**	
Parentucellia latifolia	**DICOT**	
Parietaria cardiostegia	**DICOT**	
Parietaria debilis	**DICOT**	
Parietaria judaica	**DICOT**	
Parthenocissus quinquefolia	**DICOT**	
Parthenocissus tricuspidata	**DICOT**	
Passiflora filamentosa	**DICOT**	
Pastinaca sativa	**DICOT**	
Pavonia hastata	**DICOT**	
Pelargonium capitatum	**DICOT**	
Pelargonium havlasae	**DICOT**	
Pelargonium littorale	**DICOT**	
Pelargonium x asperum	**DICOT**	
Pelargonium x domesticum	**DICOT**	
Pericalymma ellipticum	**DICOT**	
Pericalymma ellipticum var. *ellipticum*	**DICOT**	
Pericalymma ellipticum var. *floridum*	**DICOT**	
Persicaria decipiens	**DICOT**	

TAXON	CLASS	CONS
Persicaria hydropiper	**DICOT**	
Persicaria lapathifolia	**DICOT**	
Persicaria maculosa	**DICOT**	
Persoonia elliptica	**DICOT**	
Persoonia macrostachya	**DICOT**	
Persoonia saccata	**DICOT**	
Petrophile axillaris	**DICOT**	
Petrophile biloba	**DICOT**	
Petrophile brevifolia	**DICOT**	
Petrophile brevifolia subsp. *brevifolia*	**DICOT**	
Petrophile juncifolia	**DICOT**	
Petrophile linearis	**DICOT**	
Petrophile macrostachya	**DICOT**	
Petrophile seminuda	**DICOT**	
Petrophile serruriae	**DICOT**	
Petrophile squamata subsp. *northern (J. Monks 40)*	**DICOT**	
Petrophile striata	**DICOT**	
Petrorhagia dubia	**DICOT**	
Petrorhagia velutina	**DICOT**	
Petunia axillaris	**DICOT**	
Petunia x atkinsiana	**DICOT**	
Phacelia tanacetifolia	**DICOT**	
Philotheca spicata	**DICOT**	
Phyla nodiflora	**DICOT**	
Phyla nodiflora var. nodiflora	**DICOT**	
Phyllangium paradoxum	**DICOT**	
Phyllanthus calycinus	**DICOT**	
Phyllanthus tenellus	**DICOT**	
Phyllopodium cordatum	**DICOT**	
Physalis angulata	**DICOT**	
Physalis peruviana	**DICOT**	
Phytolacca octandra	**DICOT**	
Picris compacta	**DICOT**	
Picris squarrosa	**DICOT**	

TAXON	CLASS	CONS
Pimelea angustifolia	**DICOT**	
Pimelea argentea	**DICOT**	
Pimelea calcicola	**DICOT**	**P3**
Pimelea ferruginea	**DICOT**	
Pimelea imbricata var. *major*	**DICOT**	
Pimelea imbricata var. *piligera*	**DICOT**	
Pimelea leucantha	**DICOT**	
Pimelea rosea	**DICOT**	
Pimelea rosea subsp. *rosea*	**DICOT**	
Pimelea spectabilis	**DICOT**	
Pimelea sulphurea	**DICOT**	
Pimelea sylvestris	**DICOT**	
Pithocarpa cordata	**DICOT**	
Pithocarpa pulchella	**DICOT**	
Pithocarpa pulchella var. *melanostigma / pulchella var. pulchella*	**DICOT**	
Pithocarpa pulchella var. *pulchella*	**DICOT**	
Pittosporum ligustrifolium	**DICOT**	
Pittosporum phylliraeoides	**DICOT**	
Pittosporum undulatum	**DICOT**	
Pityrodia axillaris	**DICOT**	
Pityrodia bartlingii	**DICOT**	
Plantago coronopus subsp. *commutata*	**DICOT**	
Plantago lanceolata	**DICOT**	
Plantago major	**DICOT**	
Platanus x hispanica	**DICOT**	
Platysace compressa	**DICOT**	
Platysace filiformis	**DICOT**	
Platysace juncea	**DICOT**	
Platysace ramosissima	**DICOT**	**P3**
Platytheca galioides	**DICOT**	
Podolepis capillaris	**DICOT**	
Podolepis gracilis	**DICOT**	
Podolepis lessonii	**DICOT**	
Podolepis nutans	**DICOT**	

TAXON	CLASS	CONS
Podotheca angustifolia	**DICOT**	
Podotheca chrysantha	**DICOT**	
Podotheca gnaphalioides	**DICOT**	
Pogonolepis stricta	**DICOT**	
Polycarpon tetraphyllum	**DICOT**	
Polygala myrtifolia	**DICOT**	
Polygonum arenastrum	**DICOT**	
Polygonum aviculare	**DICOT**	
Populus alba	**DICOT**	
Populus nigra cv. italica	**DICOT**	
Poranthera drummondii	**DICOT**	
Poranthera ericoides	**DICOT**	
Poranthera microphylla	**DICOT**	
Poranthera moorokatta	**DICOT**	**P2**
Proboscidea louisianica	**DICOT**	
Pseudognaphalium luteoalbum	**DICOT**	
Pterochaeta paniculata	**DICOT**	
Ptilotus declinatus	**DICOT**	
Ptilotus drummondii	**DICOT**	
Ptilotus drummondii var. *drummondii*	**DICOT**	
Ptilotus eremita	**DICOT**	
Ptilotus esquamatus	**DICOT**	
Ptilotus manglesii	**DICOT**	
Ptilotus polystachyus	**DICOT**	
Ptilotus sericostachyus subsp. *roseus*	**DICOT**	
Ptilotus sericostachyus subsp. *sericostachyus*	**DICOT**	**P1**
Ptilotus stirlingii subsp. *stirlingii*	**DICOT**	
Pultenaea ericifolia	**DICOT**	
Pultenaea reticulata	**DICOT**	
Quinetia urvillei	**DICOT**	
Ranunculus colonorum	**DICOT**	
Ranunculus muricatus	**DICOT**	
Ranunculus sessiliflorus var. *sessiliflorus*	**DICOT**	
Ranunculus trilobus	**DICOT**	

TAXON	CLASS	CONS
Raphanus raphanistrum	**DICOT**	
Raphanus sativus	**DICOT**	
Regelia ciliata	**DICOT**	
Regelia inops	**DICOT**	
Reseda lutea	**DICOT**	
Retama raetam	**DICOT**	
Rhagodia baccata	**DICOT**	
Rhagodia baccata subsp. *baccata*	**DICOT**	
Rhagodia baccata subsp. *dioica*	**DICOT**	
Rhagodia preissii subsp. *preissii*	**DICOT**	
Rhamnus alaternus	**DICOT**	
Rhodanthe chlorocephala subsp. *rosea*	**DICOT**	
Rhodanthe citrina	**DICOT**	
Rhodanthe corymbosa	**DICOT**	
Rhodanthe manglesii	**DICOT**	
Rhodanthe pyrethrum	**DICOT**	
Ricinocarpos glaucus	**DICOT**	
Ricinocarpos megalocarpus	**DICOT**	
Ricinocarpos undulatus	**DICOT**	
Ricinus communis	**DICOT**	
Robinia pseudoacacia	**DICOT**	
Roldana petasitis	**DICOT**	
Romneya coulteri	**DICOT**	
Rorippa nasturtium-aquaticum	**DICOT**	
Rosa chinensis x moschata	**DICOT**	
Rubus laudatus	**DICOT**	
Rumex acetosella	**DICOT**	
Rumex conglomeratus	**DICOT**	
Rumex crispus	**DICOT**	
Rumex hypogaeus	**DICOT**	
Rumex obtusifolius subsp. obtusifolius	**DICOT**	
Rumex pulcher	**DICOT**	
Rumex pulcher subsp. *woodsii*	**DICOT**	
Rumex sagittatus	**DICOT**	

TAXON	CLASS	CONS
Rumex vesicarius	**DICOT**	
Sagina apetala	**DICOT**	
Sagina procumbens	**DICOT**	
Salicornia quinqueflora	**DICOT**	
Salicornia quinqueflora subsp. *quinqueflora*	**DICOT**	
Salix babylonica	**DICOT**	
Salix cinerea	**DICOT**	
Salix humboldtiana	**DICOT**	
Salpichroa origanifolia	**DICOT**	
Salsola australis	**DICOT**	
Salvia reflexa	**DICOT**	
Salvia verbenaca	**DICOT**	
Samolus junceus	**DICOT**	
Samolus repens	**DICOT**	
Samolus repens var. *paucifolius*	**DICOT**	
Samolus repens var. *repens*	**DICOT**	
Santalum acuminatum	**DICOT**	
Santalum spicatum	**DICOT**	
Sarcocornia quinqueflora	**DICOT**	
Scabiosa atropurpurea	**DICOT**	
Scaevola anchusifolia	**DICOT**	
Scaevola canescens	**DICOT**	
Scaevola crassifolia	**DICOT**	
Scaevola glandulifera	**DICOT**	
Scaevola lanceolata	**DICOT**	
Scaevola nitida	**DICOT**	
Scaevola phlebopetala	**DICOT**	
Scaevola repens	**DICOT**	
Scaevola repens var. *angustifolia*	**DICOT**	
Scaevola repens var. *repens*	**DICOT**	
Scaevola thesioides	**DICOT**	
Scaevola thesioides subsp. *thesioides*	**DICOT**	
Schenkia australis	**DICOT**	
Schinus terebinthifolia	**DICOT**	

TAXON	CLASS	CONS
Schinus terebinthifolius	**DICOT**	
Schoenolaena juncea	**DICOT**	
Scholtzia capitata	**DICOT**	
Scholtzia involucrata	**DICOT**	
Scholtzia laxiflora	**DICOT**	
Senecio angulatus	**DICOT**	
Senecio condylus	**DICOT**	
Senecio diaschides	**DICOT**	
Senecio elegans	**DICOT**	
Senecio glossanthus x lautus	**DICOT**	
Senecio hispidulus	**DICOT**	
Senecio multicaulis subsp. *multicaulis*	**DICOT**	
Senecio pinnatifolius	**DICOT**	
Senecio pinnatifolius var. *latilobus*	**DICOT**	
Senecio pinnatifolius var. *maritimus*	**DICOT**	
Senecio ramosissimus	**DICOT**	
Senecio vulgaris	**DICOT**	
Senegalia rugata	**DICOT**	
Senna artemisioides	**DICOT**	
Senna artemisioides subsp. *helmsii*	**DICOT**	
Seringia integrifolia	**DICOT**	
Sida fallax	**DICOT**	
Sida hookeriana	**DICOT**	
Silene armeria	**DICOT**	
Silene calabrica	**DICOT**	
Silene gallica	**DICOT**	
Silene gallica var. *gallica*	**DICOT**	
Silene gallica var. *quinquevulnera*	**DICOT**	
Silene nocturna	**DICOT**	
Siloxerus filifolius	**DICOT**	
Siloxerus humifusus	**DICOT**	
Silybum marianum	**DICOT**	
Sisymbrium irio	**DICOT**	
Sisymbrium orientale	**DICOT**	

TAXON	CLASS	CONS
Solanum americanum	**DICOT**	
Solanum aviculare	**DICOT**	
Solanum giganteum	**DICOT**	
Solanum laciniatum	**DICOT**	
Solanum linnaeanum	**DICOT**	
Solanum lycopersicum	**DICOT**	
Solanum nigrum	**DICOT**	
Solanum sisymbriifolium	**DICOT**	
Solanum symonii	**DICOT**	
Solidago altissima var. *pluricephala*	**DICOT**	
Solidago canadensis	**DICOT**	
Solidago chilensis	**DICOT**	
Soliva sessilis	**DICOT**	
Sonchus asper	**DICOT**	
Sonchus hydrophilus	**DICOT**	
Sonchus oleraceus	**DICOT**	
Spergula arvensis	**DICOT**	
Spergularia brevifolia	**DICOT**	
Spergularia marina	**DICOT**	
Spergularia rubra	**DICOT**	
Sphaerolobium hygrophilum	**DICOT**	
Sphaerolobium linophyllum	**DICOT**	
Sphaerolobium macranthum	**DICOT**	
Sphaerolobium medium	**DICOT**	
Sphaerolobium vimineum	**DICOT**	
Spyridium globulosum	**DICOT**	
Spyridium tridentatum	**DICOT**	
Stachys arvensis	**DICOT**	
Stachystemon vermicularis	**DICOT**	
Stackhousia huegelii	**DICOT**	
Stackhousia monogyna	**DICOT**	
Stellaria media	**DICOT**	
Stellaria pallida	**DICOT**	
Stenanthemum humile	**DICOT**	

TAXON	CLASS	CONS
Stenanthemum notiale subsp. *chamelum*	**DICOT**	
Stenopetalum gracile	**DICOT**	
Stirlingia latifolia	**DICOT**	
Stirlingia simplex	**DICOT**	
Stylidium aceratum	**DICOT**	**P3**
Stylidium adpressum	**DICOT**	
Stylidium amoenum	**DICOT**	
Stylidium androsaceum	**DICOT**	
Stylidium araeophyllum	**DICOT**	
Stylidium asteroideum	**DICOT**	**P3**
Stylidium bicolor	**DICOT**	
Stylidium bindoon	**DICOT**	
Stylidium brunonianum	**DICOT**	
Stylidium carnosum	**DICOT**	
Stylidium cygnorum	**DICOT**	
Stylidium despectum	**DICOT**	
Stylidium dichotomum	**DICOT**	
Stylidium diuroides	**DICOT**	
Stylidium diuroides subsp. *diuroides*	**DICOT**	
Stylidium divaricatum	**DICOT**	
Stylidium eriopodum	**DICOT**	
Stylidium guttatum	**DICOT**	
Stylidium hesperium	**DICOT**	
Stylidium hispidum	**DICOT**	
Stylidium inundatum	**DICOT**	
Stylidium junceum subsp. *junceum*	**DICOT**	
Stylidium longitubum	**DICOT**	**P4**
Stylidium macrocarpum	**DICOT**	
Stylidium maritimum	**DICOT**	**P3**
Stylidium neurophyllum	**DICOT**	
Stylidium obtusatum	**DICOT**	
Stylidium paludicola	**DICOT**	**P3**
Stylidium perpusillum	**DICOT**	
Stylidium petiolare	**DICOT**	

TAXON	CLASS	CONS
Stylidium piliferum	**DICOT**	
Stylidium pubigerum	**DICOT**	
Stylidium pulchellum	**DICOT**	
Stylidium repens	**DICOT**	
Stylidium rigidulum	**DICOT**	
Stylidium roseoalatum	**DICOT**	
Stylidium scariosum	**DICOT**	
Stylidium schoenoides	**DICOT**	
Stylidium striatum	**DICOT**	**P4**
Stylidium thesioides	**DICOT**	
Stylidium utricularioides	**DICOT**	
Styphelia filifolia	**DICOT**	**P3**
Styphelia tenuiflora	**DICOT**	
Suaeda australis	**DICOT**	
Succowia balearica	**DICOT**	
Symphyotrichum squamatum	**DICOT**	
Synaphea acutiloba	**DICOT**	
Synaphea gracillima	**DICOT**	
Synaphea sp. Fairbridge Farm (D. Papenfus 696)	**DICOT**	**CR**
Synaphea spinulosa	**DICOT**	
Synaphea spinulosa subsp. spinulosa	**DICOT**	
Tagetes minuta	**DICOT**	
Taraxacum khatoonae	**DICOT**	
Taraxacum officinale	**DICOT**	
Taxandria linearifolia	**DICOT**	
Tecticornia halocnemoides	**DICOT**	
Tecticornia halocnemoides subsp. halocnemoides	**DICOT**	
Tecticornia indica subsp. *bidens*	**DICOT**	
Tecticornia lepidosperma	**DICOT**	
Tecticornia pergranulata	**DICOT**	
Tecticornia pergranulata subsp. *pergranulata*	**DICOT**	
Templetonia drummondii	**DICOT**	
Templetonia retusa	**DICOT**	
Tersonia cyathiflora	**DICOT**	

TAXON	CLASS	CONS
Tetragonia decumbens	**DICOT**	
Tetragonia nigrescens	**DICOT**	
Tetragonia tetragonoides	**DICOT**	
Tetratheca hirsuta subsp. *hirsuta*	**DICOT**	
Tetratheca hirsuta subsp. *viminea*	**DICOT**	
Tetratheca nuda	**DICOT**	
Thomasia cognata	**DICOT**	
Thomasia foliosa	**DICOT**	
Thomasia grandiflora	**DICOT**	
Thomasia macrocarpa	**DICOT**	
Thomasia paniculata	**DICOT**	
Thomasia pauciflora	**DICOT**	
Thomasia petalocalyx	**DICOT**	
Thomasia purpurea	**DICOT**	
Thomasia rulingioides	**DICOT**	
Thomasia triphylla	**DICOT**	
Threlkeldia diffusa	**DICOT**	
Thryptomene saxicola	**DICOT**	
Trachymene coerulea subsp. *coerulea*	**DICOT**	
Trachymene coerulea var. *coerulea*	**DICOT**	
Trachymene cyanopetala	**DICOT**	
Trachymene ornata	**DICOT**	
Trachymene pilosa	**DICOT**	
Tribulus terrestris	**DICOT**	
Trichocline spathulata	**DICOT**	
Trifolium angustifolium	**DICOT**	
Trifolium angustifolium var. *angustifolium*	**DICOT**	
Trifolium arvense	**DICOT**	
Trifolium arvense var. *arvense*	**DICOT**	
Trifolium campestre	**DICOT**	
Trifolium campestre var. *campestre*	**DICOT**	
Trifolium cernuum	**DICOT**	
Trifolium cherleri	**DICOT**	
Trifolium dubium	**DICOT**	

TAXON	CLASS	CONS
Trifolium fragiferum var. fragiferum	**DICOT**	
Trifolium glomeratum	**DICOT**	
Trifolium hirtum	**DICOT**	
Trifolium hybridum var. *hybridum*	**DICOT**	
Trifolium incarnatum var. *incarnatum*	**DICOT**	
Trifolium michelianum	**DICOT**	
Trifolium ornithopodioides	**DICOT**	
Trifolium pratense var. *sativum*	**DICOT**	
Trifolium repens	**DICOT**	
Trifolium repens var. *repens*	**DICOT**	
Trifolium resupinatum var. *majus*	**DICOT**	
Trifolium resupinatum var. *resupinatum*	**DICOT**	
Trifolium scabrum	**DICOT**	
Trifolium spumosum	**DICOT**	
Trifolium subterraneum	**DICOT**	
Trifolium suffocatum	**DICOT**	
Trifolium tomentosum	**DICOT**	
Trifolium tomentosum var. *tomentosum*	**DICOT**	
Tripterococcus brunonis	**DICOT**	
Tripterococcus sp. (A.S. George 14234)	**DICOT**	
Tripterococcus sp. Brachylobus (A.S. George 14234)	**DICOT**	**P4**
Trithuria bibracteata	**DICOT**	
Trithuria submersa	**DICOT**	
Tropaeolum majus	**DICOT**	
Tropaeolum pentaphyllum	**DICOT**	
Trymalium albicans	**DICOT**	
Trymalium floribundum	**DICOT**	
Trymalium ledifolium	**DICOT**	
Trymalium ledifolium var. *ledifolium*	**DICOT**	
Trymalium ledifolium var. *rosmarinifolium*	**DICOT**	
Trymalium odoratissimum subsp. *odoratissimum*	**DICOT**	
Ulex europaeus	**DICOT**	
Ulmus parvifolia	**DICOT**	
Urospermum picroides	**DICOT**	

TAXON	CLASS	CONS
Ursinia anthemoides	**DICOT**	
Ursinia anthemoides subsp. *anthemoides*	**DICOT**	
Urtica urens	**DICOT**	
Utricularia gibba	**DICOT**	
Utricularia inaequalis	**DICOT**	
Utricularia menziesii	**DICOT**	
Utricularia multifida	**DICOT**	
Utricularia tenella	**DICOT**	
Utricularia violacea	**DICOT**	
Utricularia volubilis	**DICOT**	
Velleia trinervis	**DICOT**	
Vellereophyton dealbatum	**DICOT**	
Verbascum thapsus subsp. *thapsus*	**DICOT**	
Verbascum virgatum	**DICOT**	
Verbena incompta	**DICOT**	
Verbena rigida var. *rigida*	**DICOT**	
Verbesina encelioides	**DICOT**	
Verbesina encelioides var. *encelioides*	**DICOT**	
Veronica aff. calycina (BJK & NG 235)	**DICOT**	
Veronica arvensis	**DICOT**	
Veronica distans	**DICOT**	
Veronica persica	**DICOT**	
Verticordia acerosa var. *acerosa*	**DICOT**	
Verticordia acerosa var. *preissii*	**DICOT**	
Verticordia densiflora	**DICOT**	
Verticordia densiflora var. *densiflora*	**DICOT**	
Verticordia drummondii	**DICOT**	
Verticordia eriocephala	**DICOT**	
Verticordia huegelii var. *huegelii*	**DICOT**	
Verticordia lindleyi subsp. *lindleyi*	**DICOT**	**P4**
Verticordia monadelpha	**DICOT**	
Verticordia monadelpha var. *monadelpha*	**DICOT**	
Verticordia nitens	**DICOT**	
Verticordia pennigera	**DICOT**	

TAXON	CLASS	CONS
Verticordia plumosa var. *brachyphylla*	**DICOT**	
Verticordia plumosa var. *plumosa*	**DICOT**	
Verticordia preissii	**DICOT**	
Verticordia venusta	**DICOT**	**P3**
Vicia benghalensis	**DICOT**	
Vicia hirsuta	**DICOT**	
Vicia sativa	**DICOT**	
Vicia sativa subsp. *cordata*	**DICOT**	
Vicia sativa subsp. *nigra*	**DICOT**	
Vicia sativa subsp. *sativa*	**DICOT**	
Vicia tetrasperma	**DICOT**	
Viminaria juncea	**DICOT**	
Wahlenbergia capensis	**DICOT**	
Wahlenbergia preissii	**DICOT**	
Waitzia citrina	**DICOT**	
Waitzia nitida	**DICOT**	
Waitzia suaveolens	**DICOT**	
Waitzia suaveolens var. *suaveolens*	**DICOT**	
Waltheria indica	**DICOT**	
Westringia dampieri	**DICOT**	
Wigandia urens var. *caracasana*	**DICOT**	
Wilsonia backhousei	**DICOT**	
Xanthium occidentale	**DICOT**	
Xanthium spinosum	**DICOT**	
Xanthosia ciliata	**DICOT**	
Xanthosia huegelii	**DICOT**	
Xylomelum occidentale	**DICOT**	
Youngia japonica	**DICOT**	
Zygophyllum fruticulosum	**DICOT**	
Adiantum capillus-veneris	**FERN**	**P2**
Anogramma leptophylla	**FERN**	
Azolla rubra	**FERN**	
Cheilanthes sieberi subsp. *sieberi*	**FERN**	
Cyathea cooperi	**FERN**	

TAXON	CLASS	CONS
Isoetes drummondii	**FERN**	
Marsilea mutica	**FERN**	
Phylloglossum drummondii	**FERN**	
Pleurosorus rutifolius	**FERN**	
Pteridium esculentum subsp. *esculentum*	**FERN**	
Salvinia molesta	**FERN**	
Schizaea fistulosa	**FERN**	
Selaginella gracillima	**FERN**	
Actinostrobus pyramidalis	**GYMNO**	
Callitris acuminata	**GYMNO**	
Callitris preissii	**GYMNO**	
Callitris pyramidalis	**GYMNO**	
Callitris roei	**GYMNO**	
Callitris verrucosa	**GYMNO**	
Macrozamia fraseri	**GYMNO**	
Macrozamia riedlei	**GYMNO**	
Pinus halepensis	**GYMNO**	
Anthoceros laevis	**LIVERWORT**	
Cephaloziella exiliflora	**LIVERWORT**	
Cephaloziella varians	**LIVERWORT**	
Chiloscyphus semiteres var. semiteres	**LIVERWORT**	
Marchantia berteroana	**LIVERWORT**	
Riccia bifurca	**LIVERWORT**	
Acanthocarpus canaliculatus	**MONOCOT**	
Acanthocarpus preissii	**MONOCOT**	
Agave americana	**MONOCOT**	
Agave angustifolia	**MONOCOT**	
Agrostocrinum hirsutum	**MONOCOT**	
Agrostocrinum scabrum subsp. scabrum	**MONOCOT**	
Aira caryophyllea	**MONOCOT**	
Aira cupaniana	**MONOCOT**	
Aira praecox	**MONOCOT**	
Albuca canadensis	**MONOCOT**	
Albuca flaccida	**MONOCOT**	

TAXON	CLASS	CONS
Alexgeorgea nitens	**MONOCOT**	
Allium ampeloprasum	**MONOCOT**	
Allium neapolitanum	**MONOCOT**	
Allium porrum	**MONOCOT**	
Allium triquetrum	**MONOCOT**	
Alocasia brisbanensis	**MONOCOT**	
Alopecurus myosuroides	**MONOCOT**	
Alstroemeria psittacina	**MONOCOT**	
Althenia australis	**MONOCOT**	
Althenia preissii	**MONOCOT**	
Amaryllis belladonna	**MONOCOT**	
Ammophila arenaria	**MONOCOT**	
Ammophila arenaria subsp. *arenaria*	**MONOCOT**	
Amphibolis antarctica	**MONOCOT**	
Amphibolis griffithii	**MONOCOT**	
Amphibromus nervosus	**MONOCOT**	
Amphipogon amphipogonoides	**MONOCOT**	
Amphipogon debilis	**MONOCOT**	
Amphipogon laguroides subsp. *laguroides*	**MONOCOT**	
Amphipogon turbinatus	**MONOCOT**	
Anarthria gracilis	**MONOCOT**	
Anigozanthos bicolor subsp. *bicolor*	**MONOCOT**	
Anigozanthos flavidus	**MONOCOT**	
Anigozanthos flavidus x manglesii	**MONOCOT**	
Anigozanthos humilis	**MONOCOT**	
Anigozanthos humilis subsp. *humilis*	**MONOCOT**	
Anigozanthos humilis x manglesii	**MONOCOT**	
Anigozanthos manglesii	**MONOCOT**	
Anigozanthos manglesii subsp. *manglesii*	**MONOCOT**	
Anigozanthos manglesii x viridis	**MONOCOT**	
Anigozanthos sp.	**MONOCOT**	
Anigozanthos viridis subsp. *viridis*	**MONOCOT**	
Aphelia cyperoides	**MONOCOT**	
Aphelia drummondii	**MONOCOT**	

TAXON	CLASS	CONS
Aponogeton hexatepalus	**MONOCOT**	**P4**
Arnocrinum preissii	**MONOCOT**	
Arrhenatherum elatius var. *bulbosum*	**MONOCOT**	
Arthropodium capillipes	**MONOCOT**	
Arundo donax	**MONOCOT**	
Asparagus aethiopicus	**MONOCOT**	
Asparagus asparagoides	**MONOCOT**	
Asparagus declinatus	**MONOCOT**	
Asparagus officinalis	**MONOCOT**	
Asparagus plumosus	**MONOCOT**	
Asphodelus fistulosus	**MONOCOT**	
Austrostipa campylachne	**MONOCOT**	
Austrostipa compressa	**MONOCOT**	
Austrostipa elegantissima	**MONOCOT**	
Austrostipa flavescens	**MONOCOT**	
Austrostipa hemipogon	**MONOCOT**	
Austrostipa mollis	**MONOCOT**	
Austrostipa mundula	**MONOCOT**	**P3**
Austrostipa nitida	**MONOCOT**	
Austrostipa semibarbata	**MONOCOT**	
Austrostipa variabilis	**MONOCOT**	
Avellinia michelii	**MONOCOT**	
Avena barbata	**MONOCOT**	
Avena fatua	**MONOCOT**	
Axonopus fissifolius	**MONOCOT**	
Babiana angustifolia	**MONOCOT**	
Babiana nana	**MONOCOT**	
Babiana tubulosa var. *tubiflora*	**MONOCOT**	
Baeometra uniflora	**MONOCOT**	
Baumea arthrophylla	**MONOCOT**	
Baumea articulata	**MONOCOT**	
Baumea juncea	**MONOCOT**	
Baumea laxa	**MONOCOT**	
Baumea preissii	**MONOCOT**	

TAXON	CLASS	CONS
Baumea rubiginosa	**MONOCOT**	
Baumea vaginalis	**MONOCOT**	
Blancoa canescens	**MONOCOT**	
Bolboschoenus caldwellii	**MONOCOT**	
Bolboschoenus fluviatilis	**MONOCOT**	**P1**
Borya scirpoidea	**MONOCOT**	
Borya sphaerocephala	**MONOCOT**	
Brachypodium distachyon	**MONOCOT**	
Briza maxima	**MONOCOT**	
Briza minor	**MONOCOT**	
Bromus alopecuros	**MONOCOT**	
Bromus arenarius	**MONOCOT**	
Bromus catharticus	**MONOCOT**	
Bromus diandrus	**MONOCOT**	
Bromus hordeaceus	**MONOCOT**	
Bromus madritensis	**MONOCOT**	
Bromus rubens	**MONOCOT**	
Burchardia bairdiae	**MONOCOT**	
Burchardia congesta	**MONOCOT**	
Burchardia multiflora	**MONOCOT**	
Burchardia umbellata	**MONOCOT**	
Caesia micrantha	**MONOCOT**	
Caesia occidentalis	**MONOCOT**	
Caladenia arenicola	**MONOCOT**	
Caladenia arenicola x georgei	**MONOCOT**	
Caladenia arenicola x huegelii	**MONOCOT**	
Caladenia arenicola x paludosa	**MONOCOT**	
Caladenia denticulata	**MONOCOT**	
Caladenia discoidea	**MONOCOT**	
Caladenia ferruginea	**MONOCOT**	
Caladenia flava	**MONOCOT**	
Caladenia flava subsp. *flava*	**MONOCOT**	
Caladenia georgei	**MONOCOT**	
Caladenia hirta subsp. *hirta*	**MONOCOT**	

TAXON	CLASS	CONS
Caladenia huegelii	**MONOCOT**	**CR**
Caladenia latifolia	**MONOCOT**	
Caladenia longicauda	**MONOCOT**	
Caladenia longicauda subsp. *calcigena*	**MONOCOT**	
Caladenia longicauda subsp. *longicauda*	**MONOCOT**	
Caladenia longicauda x paludosa	**MONOCOT**	
Caladenia longiclavata	**MONOCOT**	
Caladenia marginata	**MONOCOT**	
Caladenia nobilis	**MONOCOT**	
Caladenia paludosa	**MONOCOT**	
Caladenia pectinata	**MONOCOT**	
Caladenia reptans subsp. *reptans*	**MONOCOT**	
Caladenia vulgata	**MONOCOT**	
Caladenia x spectabilis	**MONOCOT**	
Caladenia xantha	**MONOCOT**	
Calectasia grandiflora	**MONOCOT**	**P2**
Calectasia narragara	**MONOCOT**	
Calochilus stramenicola	**MONOCOT**	
Canna x generalis	**MONOCOT**	
Carex appressa	**MONOCOT**	
Carex divisa	**MONOCOT**	
Carex fascicularis	**MONOCOT**	
Carex preissii	**MONOCOT**	
Carex tereticaulis	**MONOCOT**	**P3**
Carex thecata	**MONOCOT**	
Cartonema philydroides	**MONOCOT**	
Catapodium rigida	**MONOCOT**	
Catapodium rigidum	**MONOCOT**	
Caustis dioica	**MONOCOT**	
Cenchrus clandestinus	**MONOCOT**	
Cenchrus echinatus	**MONOCOT**	
Cenchrus longisetus	**MONOCOT**	
Cenchrus macrourus	**MONOCOT**	
Cenchrus purpureus	**MONOCOT**	

TAXON	CLASS	CONS
Cenchrus setaceus	**MONOCOT**	
Cenchrus spinifex	**MONOCOT**	
Centrolepis aristata	**MONOCOT**	
Centrolepis drummondiana	**MONOCOT**	
Centrolepis inconspicua	**MONOCOT**	
Centrolepis mutica	**MONOCOT**	
Centrolepis polygyna	**MONOCOT**	
Chaetanthus aristatus	**MONOCOT**	
Chamaescilla corymbosa	**MONOCOT**	
Chamaescilla corymbosa var. *corymbosa*	**MONOCOT**	
Chasmanthe floribunda	**MONOCOT**	
Chloris gayana	**MONOCOT**	
Chordifex sinuosus	**MONOCOT**	
Chorizandra enodis	**MONOCOT**	
Coix lacryma-jobi	**MONOCOT**	
Colocasia esculenta var. *esculenta*	**MONOCOT**	
Commelina benghalensis	**MONOCOT**	
Conostylis aculeata	**MONOCOT**	
Conostylis aculeata subsp. *aculeata*	**MONOCOT**	
Conostylis aculeata subsp. *cygnorum*	**MONOCOT**	
Conostylis aculeata subsp. *preissii*	**MONOCOT**	
Conostylis aculeata X candicans	**MONOCOT**	
Conostylis aurea	**MONOCOT**	
Conostylis bracteata	**MONOCOT**	**P3**
Conostylis candicans	**MONOCOT**	
Conostylis candicans subsp. *calcicola*	**MONOCOT**	
Conostylis candicans subsp. *candicans*	**MONOCOT**	
Conostylis caricina	**MONOCOT**	
Conostylis festucacea subsp. *festucacea*	**MONOCOT**	
Conostylis juncea	**MONOCOT**	
Conostylis setigera	**MONOCOT**	
Conostylis setigera subsp. *setigera*	**MONOCOT**	
Conostylis setosa	**MONOCOT**	
Conostylis sp.	**MONOCOT**	

TAXON	CLASS	CONS
Cortaderia selloana subsp. *selloana*	**MONOCOT**	
Corynotheca micrantha	**MONOCOT**	
Corynotheca micrantha var. *elongata*	**MONOCOT**	
Corynotheca micrantha var. *micrantha*	**MONOCOT**	
Cyanella hyacinthoides	**MONOCOT**	
Cyanicula gemmata	**MONOCOT**	
Cyanicula sericea	**MONOCOT**	
Cyathochaeta avenacea	**MONOCOT**	
Cyathochaeta clandestina	**MONOCOT**	
Cyathochaeta teretifolia	**MONOCOT**	**P3**
Cycnogeton huegelii	**MONOCOT**	
Cycnogeton lineare	**MONOCOT**	
Cynodon dactylon	**MONOCOT**	
Cyperus brevifolius	**MONOCOT**	
Cyperus congestus	**MONOCOT**	
Cyperus eragrostis	**MONOCOT**	
Cyperus gymnocaulos	**MONOCOT**	
Cyperus involucratus	**MONOCOT**	
Cyperus laevigatus	**MONOCOT**	
Cyperus papyrus	**MONOCOT**	
Cyperus polystachyos	**MONOCOT**	
Cyperus tenellus	**MONOCOT**	
Cyperus tenuiflorus	**MONOCOT**	
Cyperus vaginatus	**MONOCOT**	
Cyperus vorsteri	**MONOCOT**	
Cyrtostylis huegelii	**MONOCOT**	
Cyrtostylis robusta	**MONOCOT**	
Cyrtostylis tenuissima	**MONOCOT**	
Cytogonidium leptocarpoides	**MONOCOT**	
Dactyloctenium australe	**MONOCOT**	
Danthonia occidentalis	**MONOCOT**	
Dasypogon bromeliifolius	**MONOCOT**	
Dasypogon obliquifolius	**MONOCOT**	
Desmocladus asper	**MONOCOT**	

TAXON	CLASS	CONS
Desmocladus fasciculatus	**MONOCOT**	
Desmocladus flexuosus	**MONOCOT**	
Desmocladus lateriflorus	**MONOCOT**	
Deyeuxia quadriseta	**MONOCOT**	
Dianella revoluta	**MONOCOT**	
Dianella revoluta var. *divaricata*	**MONOCOT**	
Dichelachne crinita	**MONOCOT**	
Dichopogon capillipes	**MONOCOT**	
Dichopogon preissii	**MONOCOT**	
Dielsia stenostachya	**MONOCOT**	
Digitaria aequiglumis	**MONOCOT**	
Digitaria ciliaris	**MONOCOT**	
Digitaria didactyla	**MONOCOT**	
Digitaria eriantha	**MONOCOT**	
Digitaria sanguinalis	**MONOCOT**	
Digitaria violascens	**MONOCOT**	
Dioscorea hastifolia	**MONOCOT**	
Disa bracteata	**MONOCOT**	
Diuris corymbosa	**MONOCOT**	
Diuris decrementa	**MONOCOT**	
Diuris drummondii	**MONOCOT**	**EN**
Diuris laxiflora	**MONOCOT**	
Diuris longifolia	**MONOCOT**	
Diuris magnifica	**MONOCOT**	
Diuris purdiei	**MONOCOT**	**EN**
Drakaea elastica	**MONOCOT**	**CR**
Drakaea glyptodon	**MONOCOT**	
Drakaea livida	**MONOCOT**	
Drakaea micrantha	**MONOCOT**	**EN**
Echinochloa colona	**MONOCOT**	
Echinochloa crus-galli	**MONOCOT**	
Echinochloa crus-pavonis	**MONOCOT**	
Echinochloa pyramidalis	**MONOCOT**	
Echinochloa telmatophila	**MONOCOT**	

TAXON	CLASS	CONS
Egeria densa	**MONOCOT**	
Ehrharta brevifolia	**MONOCOT**	
Ehrharta brevifolia var. *brevifolia*	**MONOCOT**	
Ehrharta brevifolia var. *cuspidata*	**MONOCOT**	
Ehrharta calycina	**MONOCOT**	
Ehrharta longiflora	**MONOCOT**	
Eleocharis acuta	**MONOCOT**	
Eleocharis keigheryi	**MONOCOT**	**VU**
Eleusine indica	**MONOCOT**	
Elythranthera brunonis	**MONOCOT**	
Elythranthera emarginata	**MONOCOT**	
Empodisma gracillimum	**MONOCOT**	
Epiblema grandiflorum	**MONOCOT**	
Eragrostis cilianensis	**MONOCOT**	
Eragrostis curvula	**MONOCOT**	
Eragrostis elongata	**MONOCOT**	
Eragrostis tenuifolia	**MONOCOT**	
Eriachne ovata	**MONOCOT**	
Eriochilus dilatatus	**MONOCOT**	
Eriochilus dilatatus subsp. *multiflorus*	**MONOCOT**	
Eriochilus helonomos	**MONOCOT**	
Eriochilus scaber subsp. *scaber*	**MONOCOT**	
Eriochilus tenuis	**MONOCOT**	
Eustachys distichophylla	**MONOCOT**	
Ferraria crispa	**MONOCOT**	
Ferraria crispa subsp. *crispa*	**MONOCOT**	
Festuca arundinacea	**MONOCOT**	
Festuca rubra	**MONOCOT**	
Ficinia nodosa	**MONOCOT**	
Fimbristylis velata	**MONOCOT**	
Freesia aff. leichtlinii	**MONOCOT**	
Freesia alba x leichtlinii	**MONOCOT**	
Freesia leichtlinii	**MONOCOT**	
Furcraea foetida	**MONOCOT**	

TAXON	CLASS	CONS
Furcraea selloa	**MONOCOT**	
Gahnia decomposita	**MONOCOT**	
Gahnia trifida	**MONOCOT**	
Gladiolus angustus	**MONOCOT**	
Gladiolus carneus	**MONOCOT**	
Gladiolus caryophyllaceus	**MONOCOT**	
Gladiolus undulatus	**MONOCOT**	
Glyceria declinata	**MONOCOT**	
Haemodorum brevisepalum	**MONOCOT**	
Haemodorum laxum	**MONOCOT**	
Haemodorum loratum	**MONOCOT**	**P3**
Haemodorum paniculatum	**MONOCOT**	
Haemodorum simplex	**MONOCOT**	
Haemodorum spicatum	**MONOCOT**	
Hemarthria uncinata var. *uncinata*	**MONOCOT**	
Hensmania turbinata	**MONOCOT**	
Hesperantha falcata	**MONOCOT**	
Holcus lanatus	**MONOCOT**	
Hordeum glaucum	**MONOCOT**	
Hordeum leporinum	**MONOCOT**	
Hordeum marinum	**MONOCOT**	
Hordeum vulgare	**MONOCOT**	
Hydrilla verticillata	**MONOCOT**	
Hyparrhenia hirta	**MONOCOT**	
Hypolaena exsulca	**MONOCOT**	
Hypolaena fastigiata	**MONOCOT**	
Hypolaena pubescens	**MONOCOT**	
Hypolaena robusta	**MONOCOT**	**P4**
Isolepis cernua var. *cernua*	**MONOCOT**	
Isolepis cernua var. *setiformis*	**MONOCOT**	
Isolepis cyperoides	**MONOCOT**	
Isolepis hookeriana	**MONOCOT**	
Isolepis marginata	**MONOCOT**	
Isolepis oldfieldiana	**MONOCOT**	

TAXON	CLASS	CONS
Isolepis prolifera	**MONOCOT**	
Isolepis stellata	**MONOCOT**	
Ixia maculata	**MONOCOT**	
Ixia paniculata	**MONOCOT**	
Ixia polystachya	**MONOCOT**	
Johnsonia pubescens	**MONOCOT**	
Johnsonia pubescens subsp. *cygnorum*	**MONOCOT**	**P2**
Johnsonia pubescens subsp. *pubescens*	**MONOCOT**	
Juncus acutus	**MONOCOT**	
Juncus acutus subsp. *acutus*	**MONOCOT**	
Juncus amabilis	**MONOCOT**	
Juncus bufonius	**MONOCOT**	
Juncus capitatus	**MONOCOT**	
Juncus holoschoenus	**MONOCOT**	
Juncus kraussii	**MONOCOT**	
Juncus kraussii subsp. *australiensis*	**MONOCOT**	
Juncus microcephalus	**MONOCOT**	
Juncus oxycarpus	**MONOCOT**	
Juncus pallidus	**MONOCOT**	
Juncus pauciflorus	**MONOCOT**	
Juncus usitatus	**MONOCOT**	
Kingia australis	**MONOCOT**	
Lachenalia aloides	**MONOCOT**	
Lachenalia bulbifera	**MONOCOT**	
Lachenalia mutabilis	**MONOCOT**	
Lachenalia reflexa	**MONOCOT**	
Lachnagrostis filiformis	**MONOCOT**	
Lachnagrostis plebeia	**MONOCOT**	
Lagurus ovatus	**MONOCOT**	
Landoltia punctata	**MONOCOT**	
Laxmannia grandiflora subsp. *grandiflora*	**MONOCOT**	
Laxmannia ramosa	**MONOCOT**	
Laxmannia ramosa subsp. *ramosa*	**MONOCOT**	
Laxmannia sessiliflora subsp. *australis*	**MONOCOT**	

TAXON	CLASS	CONS
Laxmannia squarrosa	**MONOCOT**	
Lemna disperma	**MONOCOT**	
Lepidobolus preissianus	**MONOCOT**	
Lepidobolus preissianus subsp. *preissianus*	**MONOCOT**	
Lepidosperma angustatum	**MONOCOT**	
Lepidosperma asperatum	**MONOCOT**	
Lepidosperma calcicola	**MONOCOT**	
Lepidosperma costale	**MONOCOT**	
Lepidosperma gladiatum	**MONOCOT**	
Lepidosperma gladiatum x angustatum	**MONOCOT**	
Lepidosperma leptostachyum	**MONOCOT**	
Lepidosperma longitudinale	**MONOCOT**	
Lepidosperma oldhamii	**MONOCOT**	
Lepidosperma pubisquameum	**MONOCOT**	
Lepidosperma resinosum	**MONOCOT**	
Lepidosperma scabrum	**MONOCOT**	
Lepidosperma sp. (coastal terete varient) (BJK&NG 231)	**MONOCOT**	
Lepidosperma sp. Coastal Dunes (R.J. Cranfield 9963)	**MONOCOT**	
Lepidosperma squamatum	**MONOCOT**	
Lepidosperma striatum	**MONOCOT**	
Leporella fimbriata	**MONOCOT**	
Leptocarpus canus	**MONOCOT**	
Leptocarpus coangustatus	**MONOCOT**	
Leptocarpus decipiens	**MONOCOT**	
Leptocarpus kraussii	**MONOCOT**	
Leptocarpus laxus	**MONOCOT**	
Leptocarpus roycei	**MONOCOT**	
Leptocarpus scariosus	**MONOCOT**	
Leptocarpus tenax	**MONOCOT**	
Leptocarpus tephrinus	**MONOCOT**	
Leptoceras menziesii	**MONOCOT**	
Lepyrodia glauca	**MONOCOT**	
Lepyrodia macra	**MONOCOT**	
Lepyrodia muirii	**MONOCOT**	

TAXON	CLASS	CONS
Leucojum aestivum	**MONOCOT**	
Limnobium laevigatum	**MONOCOT**	
Lolium loliaceum	**MONOCOT**	
Lolium multiflorum	**MONOCOT**	
Lolium perenne	**MONOCOT**	
Lolium perenne x rigidum	**MONOCOT**	
Lolium remotum	**MONOCOT**	
Lolium rigidum	**MONOCOT**	
Lolium temulentum forma arvense	**MONOCOT**	
Lolium temulentum forma temulentum	**MONOCOT**	
Lolium x hybridum	**MONOCOT**	
Lomandra caespitosa	**MONOCOT**	
Lomandra hermaphrodita	**MONOCOT**	
Lomandra maritima	**MONOCOT**	
Lomandra micrantha subsp. *micrantha*	**MONOCOT**	
Lomandra nigricans	**MONOCOT**	
Lomandra odora	**MONOCOT**	
Lomandra preissii	**MONOCOT**	
Lomandra purpurea	**MONOCOT**	
Lomandra sericea	**MONOCOT**	
Lomandra sonderi	**MONOCOT**	
Lomandra spartea	**MONOCOT**	
Lomandra suaveolens	**MONOCOT**	
Loxocarya fasciculata	**MONOCOT**	
Loxocarya flexuosa	**MONOCOT**	
Luzula meridionalis	**MONOCOT**	
Lyginia barbata	**MONOCOT**	
Lyginia imberbis	**MONOCOT**	
Lyperanthus nigricans	**MONOCOT**	
Megathyrsus maximus var. maximus	**MONOCOT**	
Melinis minutiflora	**MONOCOT**	
Melinis repens	**MONOCOT**	
Mesomelaena pseudostygia	**MONOCOT**	
Mesomelaena tetragona	**MONOCOT**	

TAXON	CLASS	CONS
Microlaena stipoides	**MONOCOT**	
Microtis arenaria	**MONOCOT**	
Microtis atrata	**MONOCOT**	
Microtis cupularis	**MONOCOT**	
Microtis media	**MONOCOT**	
Microtis media subsp. *densiflora*	**MONOCOT**	
Microtis media subsp. *media*	**MONOCOT**	
Miscanthus sinensis	**MONOCOT**	
Moraea flaccida	**MONOCOT**	
Moraea lewisiae	**MONOCOT**	
Moraea ochroleuca	**MONOCOT**	
Moraea setifolia	**MONOCOT**	
Musa acuminata	**MONOCOT**	
Muscari comosum	**MONOCOT**	
Myrsiphyllum asparagoides	**MONOCOT**	
Najas marina	**MONOCOT**	
Narcissus papyraceus	**MONOCOT**	
Narcissus tazetta subsp. *aureus*	**MONOCOT**	
Narcissus tazetta subsp. *italicus*	**MONOCOT**	
Narcissus tazetta subsp. *tazetta*	**MONOCOT**	
Neurachne alopecuroidea	**MONOCOT**	
Nothoscordum gracile	**MONOCOT**	
Ornithogalum arabicum	**MONOCOT**	
Orthrosanthus laxus	**MONOCOT**	
Orthrosanthus laxus var. *laxus*	**MONOCOT**	
Ottelia ovalifolia	**MONOCOT**	
Ottelia ovalifolia subsp. *ovalifolia*	**MONOCOT**	
Panicum miliaceum	**MONOCOT**	
Panicum repens	**MONOCOT**	
Paracaleana hortiorum	**MONOCOT**	
Parapholis incurva	**MONOCOT**	
Paspalidium clementii	**MONOCOT**	
Paspalum dilatatum	**MONOCOT**	
Paspalum distichum	**MONOCOT**	

TAXON	CLASS	CONS
Paspalum notatum	**MONOCOT**	
Paspalum urvillei	**MONOCOT**	
Paspalum vaginatum	**MONOCOT**	
Patersonia juncea	**MONOCOT**	
Patersonia occidentalis	**MONOCOT**	
Patersonia occidentalis var. *angustifolia*	**MONOCOT**	
Patersonia occidentalis var. *occidentalis*	**MONOCOT**	
Pauridia glabella var. *glabella*	**MONOCOT**	
Pauridia occidentalis	**MONOCOT**	
Pauridia vaginata var. *vaginata*	**MONOCOT**	
Pennisetum setaceum	**MONOCOT**	
Pentameris pallida	**MONOCOT**	
Pentaschistis airoides	**MONOCOT**	
Phalaris angusta	**MONOCOT**	
Phalaris aquatica	**MONOCOT**	
Phalaris canariensis	**MONOCOT**	
Phalaris minor	**MONOCOT**	
Phalaris paradoxa	**MONOCOT**	
Pheladenia deformis	**MONOCOT**	
Philydrella drummondii	**MONOCOT**	
Philydrella pygmaea	**MONOCOT**	
Philydrella pygmaea subsp. *pygmaea*	**MONOCOT**	
Phlebocarya ciliata	**MONOCOT**	
Phlebocarya filifolia	**MONOCOT**	
Phleum arenarium	**MONOCOT**	
Phoenix canariensis	**MONOCOT**	
Piptatherum miliaceum	**MONOCOT**	
Poa annua	**MONOCOT**	
Poa bulbosa	**MONOCOT**	
Poa drummondiana	**MONOCOT**	
Poa homomalla	**MONOCOT**	
Poa poiformis	**MONOCOT**	
Poa porphyroclados	**MONOCOT**	
Poa pratensis	**MONOCOT**	

TAXON	CLASS	CONS
Polypogon monspeliensis	**MONOCOT**	
Posidonia australis	**MONOCOT**	
Posidonia ostenfeldii	**MONOCOT**	
Potamogeton crispus	**MONOCOT**	
Potamogeton ochreatus	**MONOCOT**	
Prasophyllum cyphochilum	**MONOCOT**	
Prasophyllum drummondii	**MONOCOT**	
Prasophyllum drummondii x regium	**MONOCOT**	
Prasophyllum elatum	**MONOCOT**	
Prasophyllum fimbria	**MONOCOT**	
Prasophyllum gibbosum	**MONOCOT**	
Prasophyllum giganteum	**MONOCOT**	
Prasophyllum gracile	**MONOCOT**	
Prasophyllum hians	**MONOCOT**	
Prasophyllum macrostachyum	**MONOCOT**	
Prasophyllum odoratissimum	**MONOCOT**	
Prasophyllum parvifolium	**MONOCOT**	
Prasophyllum plumiforme	**MONOCOT**	
Prasophyllum regium	**MONOCOT**	
Pterostylis aff. nana	**MONOCOT**	
Pterostylis aspera	**MONOCOT**	
Pterostylis atrosanguinea	**MONOCOT**	
Pterostylis barbata	**MONOCOT**	
Pterostylis brevisepala	**MONOCOT**	
Pterostylis dilatata	**MONOCOT**	
Pterostylis erubescens	**MONOCOT**	
Pterostylis glebosa	**MONOCOT**	
Pterostylis nana	**MONOCOT**	
Pterostylis orbiculata	**MONOCOT**	
Pterostylis pyramidalis	**MONOCOT**	
Pterostylis recurva	**MONOCOT**	
Pterostylis sanguinea	**MONOCOT**	
Pterostylis sp. crinkled leaf (G.J. Keighery 13426)	**MONOCOT**	
Pterostylis vittata	**MONOCOT**	

TAXON	CLASS	CONS
Pyrorchis nigricans	**MONOCOT**	
Romulea flava	**MONOCOT**	
Romulea flava var. *minor*	**MONOCOT**	
Romulea rosea	**MONOCOT**	
Romulea rosea var. *australis*	**MONOCOT**	
Romulea rosea var. *communis*	**MONOCOT**	
Rostraria cristata	**MONOCOT**	
Ruppia megacarpa	**MONOCOT**	
Ruppia polycarpa	**MONOCOT**	
Rytidosperma caespitosum	**MONOCOT**	
Rytidosperma occidentale	**MONOCOT**	
Rytidosperma setaceum	**MONOCOT**	
Sagittaria platyphylla	**MONOCOT**	
Schoenoplectus pungens	**MONOCOT**	
Schoenoplectus tabernaemontani	**MONOCOT**	
Schoenus andrewsii	**MONOCOT**	
Schoenus asperocarpus	**MONOCOT**	
Schoenus benthamii	**MONOCOT**	**P3**
Schoenus bifidus	**MONOCOT**	
Schoenus brevisetis	**MONOCOT**	
Schoenus caespititius	**MONOCOT**	
Schoenus capillifolius	**MONOCOT**	**P3**
Schoenus clandestinus	**MONOCOT**	
Schoenus curvifolius	**MONOCOT**	
Schoenus discifer	**MONOCOT**	
Schoenus efoliatus	**MONOCOT**	
Schoenus elegans	**MONOCOT**	
Schoenus grammatophyllus	**MONOCOT**	
Schoenus grandiflorus	**MONOCOT**	
Schoenus laevigatus	**MONOCOT**	
Schoenus lanatus	**MONOCOT**	
Schoenus latitans	**MONOCOT**	
Schoenus natans	**MONOCOT**	**P4**
Schoenus pedicellatus	**MONOCOT**	

TAXON	CLASS	CONS
Schoenus pennisetis	**MONOCOT**	**P3**
Schoenus plumosus	**MONOCOT**	
Schoenus rigens	**MONOCOT**	
Schoenus sculptus	**MONOCOT**	
Schoenus sp. Waroona (G.J. Keighery 12235)	**MONOCOT**	**P3**
Schoenus subbarbatus	**MONOCOT**	
Schoenus subbulbosus	**MONOCOT**	
Schoenus subfascicularis	**MONOCOT**	
Schoenus subflavus	**MONOCOT**	
Secale cereale	**MONOCOT**	
Setaria italica	**MONOCOT**	
Setaria palmifolia	**MONOCOT**	
Setaria parviflora	**MONOCOT**	
Setaria sphacelata	**MONOCOT**	
Sisyrinchium rosulatum	**MONOCOT**	
Sorghum bicolor	**MONOCOT**	
Sorghum halepense	**MONOCOT**	
Sorghum x drummondii	**MONOCOT**	
Sowerbaea laxiflora	**MONOCOT**	
Sparaxis bulbifera	**MONOCOT**	
Sparaxis pillansii	**MONOCOT**	
Spinifex hirsutus	**MONOCOT**	
Spinifex hirsutus x sericeus	**MONOCOT**	
Spinifex longifolius	**MONOCOT**	
Spinifex longifolius x sericeus	**MONOCOT**	
Spinifex sericeus	**MONOCOT**	
Spinifex sericeus x longifolius	**MONOCOT**	
Spinifex x alterniflorus	**MONOCOT**	
Sporobolus africanus	**MONOCOT**	
Sporobolus virginicus	**MONOCOT**	
Stenotaphrum secundatum	**MONOCOT**	
Stipa compressa	**MONOCOT**	
Stipa drummondii	**MONOCOT**	
Stipa elegantissima	**MONOCOT**	

TAXON	CLASS	CONS
Stipa flavescens	**MONOCOT**	
Stipa hemipogon	**MONOCOT**	
Stipa mollis	**MONOCOT**	
Stuckenia pectinata	**MONOCOT**	
Stypandra glauca	**MONOCOT**	
Tetraria australiensis	**MONOCOT**	
Tetraria octandra	**MONOCOT**	
Thalassodendron pachyrhizum	**MONOCOT**	
Thelymitra antennifera	**MONOCOT**	
Thelymitra benthamiana	**MONOCOT**	
Thelymitra campanulata	**MONOCOT**	
Thelymitra cornicina	**MONOCOT**	
Thelymitra crinita	**MONOCOT**	
Thelymitra flexuosa	**MONOCOT**	
Thelymitra flexuosa x vulgaris	**MONOCOT**	
Thelymitra macrophylla	**MONOCOT**	
Thelymitra mucida	**MONOCOT**	
Thelymitra spiralis	**MONOCOT**	
Thelymitra tigrina	**MONOCOT**	
Thelymitra variegata	**MONOCOT**	**CR**
Thelymitra villosa	**MONOCOT**	
Thelymitra vulgaris	**MONOCOT**	
Thinopyrum distichum	**MONOCOT**	
Thysanotus anceps	**MONOCOT**	**P3**
Thysanotus arbuscula	**MONOCOT**	
Thysanotus arenarius	**MONOCOT**	
Thysanotus asper	**MONOCOT**	
Thysanotus manglesianus	**MONOCOT**	
Thysanotus multiflorus	**MONOCOT**	
Thysanotus patersonii	**MONOCOT**	
Thysanotus sp. Badgingarra (E.A. Griffin 2511)	**MONOCOT**	**P2**
Thysanotus sp. Coastal plain (N.H. Brittan 66/63)	**MONOCOT**	
Thysanotus sp. manglesianus/patersonii group	**MONOCOT**	
Thysanotus sparteus	**MONOCOT**	

TAXON	CLASS	CONS
Thysanotus tenellus	**MONOCOT**	
Thysanotus thyrsoideus	**MONOCOT**	
Thysanotus triandrus	**MONOCOT**	
Trachyandra divaricata	**MONOCOT**	
Tradescantia fluminensis	**MONOCOT**	
Tremulina tremula	**MONOCOT**	
Tribolium uniolae	**MONOCOT**	
Tribonanthes australis	**MONOCOT**	
Tribonanthes australis x brachypetala	**MONOCOT**	
Tribonanthes australis x longipetala	**MONOCOT**	
Tribonanthes brachypetala	**MONOCOT**	
Tribonanthes longipetala	**MONOCOT**	
Tribonanthes violacea	**MONOCOT**	
Tricoryne elatior	**MONOCOT**	
Tricoryne humilis	**MONOCOT**	
Tricoryne tenella	**MONOCOT**	
Tricostularia neesii	**MONOCOT**	
Tricostularia neesii var. *neesii*	**MONOCOT**	
Triglochin isingiana	**MONOCOT**	
Triglochin minutissima	**MONOCOT**	
Triglochin mucronata	**MONOCOT**	
Triglochin muelleri	**MONOCOT**	
Triglochin nana	**MONOCOT**	
Triglochin striata	**MONOCOT**	
Triglochin trichophora	**MONOCOT**	
Trisetum flavescens	**MONOCOT**	
Triticum aestivum	**MONOCOT**	
Tritonia gladiolaris	**MONOCOT**	
Typha domingensis	**MONOCOT**	
Typha orientalis	**MONOCOT**	
Typhonium peltandroides	**MONOCOT**	**P1**
Urochilus sanguineus	**MONOCOT**	
Vallisneria australis	**MONOCOT**	
Vallisneria nana	**MONOCOT**	

TAXON	CLASS	CONS
Vulpia bromoides	**MONOCOT**	
Vulpia fasciculata	**MONOCOT**	
Vulpia membranacea	**MONOCOT**	
Vulpia myuros	**MONOCOT**	
Vulpia myuros forma megalura	**MONOCOT**	
Vulpia myuros forma myuros	**MONOCOT**	
Watsonia aletroides	**MONOCOT**	
Watsonia borbonica	**MONOCOT**	
Watsonia marginata	**MONOCOT**	
Watsonia meriana var. *bulbillifera*	**MONOCOT**	
Watsonia meriana var. *meriana*	**MONOCOT**	
Watsonia versfeldii	**MONOCOT**	
Wurmbea dioica	**MONOCOT**	
Wurmbea dioica subsp. *alba*	**MONOCOT**	
Wurmbea monantha	**MONOCOT**	
Xanthorrhoea brunonis	**MONOCOT**	
Xanthorrhoea brunonis subsp. *brunonis*	**MONOCOT**	
Xanthorrhoea brunonis subsp. *semibarbata*	**MONOCOT**	
Xanthorrhoea preissii	**MONOCOT**	
Zantedeschia aethiopica	**MONOCOT**	
Barbula calycina	**MOSS**	
Bryoerythrophyllum dubium	**MOSS**	
Bryum argenteum	**MOSS**	
Bryum lanatum	**MOSS**	
Campylopus flindersii	**MOSS**	
Campylopus introflexus	**MOSS**	
Ceratodon purpureus subsp. *convolutus*	**MOSS**	
Dicranoloma diaphanoneuron	**MOSS**	
Didymodon australasiae	**MOSS**	
Didymodon torquatus	**MOSS**	
Fabronia hampeana	**MOSS**	**P2**
Fissidens curvatus var. *curvatus*	**MOSS**	
Fissidens megalotis	**MOSS**	
Fissidens taylorii var. *taylorii*	**MOSS**	

TAXON	CLASS	CONS
Funaria hygrometrica	**MOSS**	
Gemmabryum dichotomum	**MOSS**	
Gemmabryum pachythecum	**MOSS**	
Gemmabryum preissianum	**MOSS**	
Gymnostomum calcareum	**MOSS**	
Leptobryum pyriforme	**MOSS**	
Leptodontium paradoxum	**MOSS**	
Pleuridium ecklonii	**MOSS**	
Pseudocrossidium hornschuchianum	**MOSS**	
Ptychostomum angustifolium	**MOSS**	
Racopilum cuspidigerum var. *convolutaceum*	**MOSS**	
Rosulabryum albolimbatum	**MOSS**	
Rosulabryum billarderi	**MOSS**	
Rosulabryum billarderii	**MOSS**	
Rosulabryum campylothecium	**MOSS**	
Rosulabryum torquescens	**MOSS**	
Sematophyllum homomallum	**MOSS**	
Syntrichia antarctica	**MOSS**	
Syntrichia pagorum	**MOSS**	
Tayloria octoblepharum	**MOSS**	
Tortella rubripes	**MOSS**	
Tortula muralis	**MOSS**	
Trichostomum eckelianum	**MOSS**	
Weissia controversa	**MOSS**	
Zygodon menziesii	**MOSS**	

Flora Species list by family across Applecross Survey Areas

Family	Species	Common Name	Status
Arecaceae	*Phoenix canariensis*	Canary Islands Date Palm	*
Asteraceae	*Cotula turbinata*		*
Casuarinaceae	*Casuarina cunninghamiana*	River Oak	*
Casuarinaceae	*Casuarina obesa*		
Juncaceae	*Juncus kraussii*		
Juncaceae	*Juncus pallidus*		
Poaceae	*Hordeum murinum*		*

Flora Species list by family across Elizabeth Quay Survey Areas

Family	Species	Common Name	Status
Chenopodiaceae	*Atriplex prostrata*		*
Juncaceae	*Juncus kraussii*		
Moraceae	*Ficus carica*	Common Fig	*
Myrtaceae	*Agonis flexuosa*	Peppermint	
Myrtaceae	*Melaleuca quinquenervia*	Broad-leaved Paperbark	*

Flora Species list by family across Matilda BaySurvey Areas

Family	Species	Common Name	Status
Arecaceae	*Phoenix canariensis*	Canary Islands Date Palm	*
Asteraceae	*Cotula turbinata*		*
Casuarinaceae	*Casuarina cunninghamiana*	River Oak	*
Casuarinaceae	*Casuarina obesa*		
Chenopodiaceae	*Atriplex prostrata*		*
Moraceae	*Ficus carica*	Common Fig	*
Myrtaceae	*Agonis flexuosa*	Peppermint	
Myrtaceae	*Corymbia calophylla*	Marri	
Myrtaceae	*Eucalyptus camaldulensis*	River Gum	*
Myrtaceae	*Eucalyptus gomphocephala*	Tuart	
Myrtaceae	*Melaleuca lanceolata*		
Myrtaceae	*Melaleuca quinquenervia*	Broad-leaved Paperbark	*
Myrtaceae	*Melaleuca viminalis*		
Plantanaceae	*Plantanus acerifolia*	London Plane	*
Poaceae	*Hordeum murinum*		*
Proteaceae	*Banksia attenuata*	Candle-stick Banksia	

Flora likelihood of occurrence assessment guidelines

Likelihood of occurrence	Guideline
Known	Species recorded within study area from field survey results.
Likely	Species previously recorded within 10 km and large areas of suitable habitat occur in the study area.
Possible	Species previously recorded within 10 km and areas of suitable habitat occur/may occur in the study area.
Unlikely	Species previously recorded within 10 km, but suitable habitat does not occur in the study area.
Highly unlikely	Species not previously recorded within 10 km, suitable habitat does not occur in the study area and/or the study area is outside the natural distribution of the species.
Other considerations	Intensity of survey, availability of access, growth form type, recorded flowering times, cryptic nature of species

Source information - desktop searches

PMST – MNES Protected Matters Search Tool (PMST) to identify flora listed under the EPBC Act potentially occurring within the study area

DBCA – DBCA (2025) Threatened and Priority flora database search within the Study Area.

NM – DBCA *NatureMap and Dandjoo Database search.*

Flora likelihood of occurrence assessment for significant flora

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Amanitaceae	*Amanita brunneola*	P2		Agaricoid species that reaches 42-52 mm diameter, 4-5 mm thick, convex becoming plane, buff to milky coffee, margin very slightly appendiculate when young, surface tacky. Favours Banksia Woodland predominantly.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, Naturemap
Amanitaceae	*Amanita carneiphylla*	P3		Pileus species reaching 70 mm in diameter, 12 mm thick, white, plane with decurved margin, margin not appendiculate, and surface dry. The species typically prefers Eucalypt woodlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, WAHerb, Naturemap
Amanitaceae	*Amanita cretaceaverruca*	P2		A species with pileus reaching 40-51 mm diameter, 3 mm thick, convex becoming plane with decurved margin, margin appendiculate, clay buff to fawn, paler at margin. Species has a preference for flooded gum and Melaleuca woodlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Amanitaceae	*Amanita drummondii*	P3		A species with Pileus 50 mm in diameter, hazel in centre, paler towards the margin, 4 mm thick, striate margin surface slightly tacky when moist, no smell on leaves. The species has a preference for Eucalypt woodlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Amanitaceae	*Amanita fibrillopes*	P3		Agaricoid species reaching 65 mm in diameter, 7 mm thick, plane with depressed centre and decurved margin, margin slightly striate. The species has a preference for wet Eucalypt woodlands	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Amanitaceae	*Amanita preissii*	P3		Agaricoid species with pileus reaching more than 80mm in diameter, cream plane, with decurved margin and slightly raised centre, and margin not striated. The species has a preference for a variety of Eucalypt and Agonis woodlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, WAHerb, Naturemap
Amanitaceae	*Amanita quenda*	P1		Agaricoid species with pileus reaching more than 85mm wide, 3 mm thick, convex, pale clay buff to hazel at margin. The species has a preference for moist Marri-dominant woodlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Amanitaceae	*Amanita wadjukiorum*	P3		Agaricoid species with the pileus reaching 90 mm in diameter, milky coffee coloured plane with depressed centre and upturned margin, dry, and the margin not striated. The species has a preference for Eucalypt woodlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Amanitaceae	*Amanita wadulawitu*	P2		An Agaricoid species with a pileus reaching up to 60mm in diameter, white, plane with depressed centre, margin appendiculate, a distinct mushroom smell, and the context white and unchanging. The species has a preference for both Eucalypt and Marri woodlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Amaryllidaceae	*Proiphys kimberleyensis*	P1		A species of Geophyte lily growing up to 70 cm with flowers white and sweetly scented occurring from September to December. The species has a preference for Basalt terrain and has been found among open woodlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Apiaceae	*Platysace ramosissima*	P3		A perennially, clumping shrub species reaching 60cm in height, with white flowers occurring from September to January. The species has a preference for grey-white sands and along undulating plains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Apiaceae	*Eryngium pinnatifidum subsp. Palustre*	P3		This is a little studied sprawling shrub species reaching a maximum of 30cm tall with pink flowers. Soil preference appears to be for sandy/loam.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Apiaceae	*Eryngium sp. Subdecumbens*	P3		This is a perennial herb species with tubular leaves and growing to 40cm tall. Flowers are pale-blue in colour, occurring from September to January, with soil preference for grey sands and clay soils, and typically found along flat, alluvial plains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Aponogetonaceae	*Aponogeton hexatepalus*	P4		This is a perennial aquatic herb species with tuberous floating leaves and white and green flowers. Habitat preference is for brown clay soils along claypans.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, WAHerb, Naturemap
Araceae	*Lazarum peltandroides*	P1		A Geophyte species growing up to 30 cm tall. The spathe is dark maroon-red adaxially, reddish green abaxially, and with flowers that are cream with a dark red apex, occurring between August and February.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, Naturemap
Araceae	*Lazarum nudibaccatum*	P1		This is a tuberous, perennial species of geophyte growing up to 25 cm. Leaves vary entirely and ovate to linearly 3-lobed, and the flowers are reddish-brown, occurring between August and February. The species has a preference for darker clay soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Araliaceae	*Hydrocotyle lemnoides*	P4		This is an aquatic, annual floating herb species with red, brown and purple flowers. Habitat preference is for brown clay soils along established wetlands and swamps.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, WAHerb, Naturemap
Araliaceae	*Hydrocotyle striata*	P1		This is a species of prostrate, annually occurring herb reaching 30cm in diameter with fleshy, lobed leaves. The species has a habitat and soil preference for black, sandy soils and undulating creek lines or open forests.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Asparagaceae	*Thysanotus anceps*	P3		This is a species of leafless, erect perennial monocot plant with purple flowers typically occurring between November to February. The species has a preference for gravel-like sandy soils in low, open heath and woodland.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Asteraceae	*Angianthus micropodioides*	P3		Erect or decumbent annual, herb, 0.03-0.15 m high. Fl. yellow-white, Nov to Dec or Jan to Feb. Saline sandy soils. River edges, saline depressions, claypans.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap TPFL

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Asteraceae	*Millotia tenuifolia var. laevis*	P2		A small species of upright, annual herb reaching 0.1m high with white-yellow flowers, occurring between September and December. The species has a preference for lighter coloured, sandy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Asteraceae	*Schoenia filifolia subsp. subulifolia*	EN	EN	A small, rare species of annually occurring herb reaching a height to 50 mm, with flowers yellow, occurring between September and December. There is a particular preference for darker loam and clay soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Brassicaceae	*Lepidium pseudohyssopifolium*	P1		Erect annual or perennial, herb, to 0.4(-0.6) m high. Fl. Jun to Sep. Swampy ground.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Byblidaceae	*Byblis gigantea*	P3		Small, branched perennial, herb (or sub-shrub), to 0.45 m high. Fl. pink-purple/white, Sep to Dec or Jan. Sandy-peat swamps. Seasonally wet areas.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap,TPFL

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Celastraceae	*Tripterococcus sp. Brachylobus (A.S. George 14234)*	P4		This is an erect, perennially occurring herb species reaching 80cm in height with yellow flowers. The species has a preference for grey, sandy clay soils and can be found along flats and plains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, WAHerb, Naturemap
Centrolepidoceae	*Centrolepis milleri*	P3		A very small, erect, annually occurring herb growing to 6 cm tall, with plants a distinct red colour. The species has a particular preference for sandy soils and sandplains and has been observed after fire events.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Chenopodiaceae	*Dysphania congestiflora*	P3		A species of erect, annually occurring herb reaching 5 cm tall, with yellow flowers occurring between July and December. There is a species preference for floodplains and clay soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Chenopodiaceae	*Tecticornia mellarium*	P1		A low species of subshrub growing up to 25 cm high, with articles glaucous blue in colour. There is a particular species preference for salt-lakes.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Cyperaceae	*Bolboschoenus fluviatilis*	P1		Perennial, rhizomatous sedge to 2m high. Littoral zone of Swan River, floodplain, river banks in mud.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	Naturemap, WAHerb
Cyperaceae	*Carex tereticaulis*	P3		This is a species of erect, tufted sedge growing to 1.5m tall and with green flowers. The species prefers brown, sandy clay soils and is often found along creek banks and along the edge of water courses.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, WAHerb, Naturemap
Cyperaceae	*Cyathochaeta teretifolia*	P3		Rhizomatous, clumped, robust perennial, grass-like or herb (sedge), to 2 m high, to 1.0 m wide. Fl. brown. Grey sand, sandy clay. Swamps, creek edges.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	Naturemap, WAHerb

Family	**Taxon**	**BC Act/ DBCA**	**EPBC Act**	**Description**	**LOO – Elizabeth Quay**	**LOO - Applecross**	**LOO – Matilda Bay**	**Source**
Cyperaceae	*Eleocharis keigheryi*	VU	VU	This is an erect, annual, aquatic sedge species growing up to 45cm tall, with green to yellow coloured flowers. It favours wet, grey clay soils and is typically found in wet, inundated flats and clay pans.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	PMST
Cyperaceae	*Lepidosperma rostratum*	EN	EN	This is a species of tufted perennial sedge growing up to 60cm tall with brown flowers and with low overall abundance in its known distribution. It has a preference for seasonal, grey clay soils and is found mostly in flat wetlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Cyperaceae	*Morelotia australiensis*	VU	VU	This is a species of rhizomatous, tufted perennial herb reaching a maximum height of 30cm. It prefers grey and brown sandy clay soils and is most often found on flat plains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	PMST, WA Herb

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Cyperaceae	*Netrostylis sp. Chandala*	P2		A species of erect, clumping sedge, growing up to 1.2 m high with delicate brown flowers, and very fine leaves. The species has a preference for darker, peaty soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Cyperaceae	*Schoenus benthamii*	P3		This is a species of upright, tufted sedge growing to 20cm tall with brown/green flowers and in typically low abundance. It has a preference for damp, dark-coloured clay soils and is typically found along flat, seasonal wetland environments.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Cyperaceae	*Schoenus capillifolius*	P3		Semi-aquatic tufted annual, grass-like or herb (sedge), 0.05 m high. Fl. green, Oct to Nov. Brown mud. Claypans.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Cyperaceae	*Schoenus natans*	P4		This is a species of annually occurring semi-aquatic herb with filamentous leaves, white stigmas and red-brown flowers occurring between September and November. The species prefers brown clay sands and has often been found within seasonal wetlands and clay pans.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Cyperaceae	*Schoenus pennisetis*	P3		This is a species of small, low-growing, annual sedge with a green-brown inflorescence when in fruit. It has a preference for grey-brown sandy loam soils and is typically found on seasonally wet and flat terrain.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, WA Herb, Naturemap
Cyperaceae	*Schoenus sp. Waroona*	P3		This is a species of small, annually occurring herb with green flowers that does not exceed 10cm in height. It has a preference for dark brown and grey clay soils and is typically found in wet clay pans.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Dasypogonaceae	*Calectasia grandiflora*	P2		Rhizomatous, perennial, herb (or undershrub), to 0.65 m high, without stilt roots. Fl. blue/purple, Jun to Nov. White, grey or yellow sand, sandy clay, gravel, laterite, granite. Swampy areas, rock outcrops, flats, slopes, ridges.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Dilleniaceae	*Hibbertia leptotheca*	P3		Small spreading shrub to 0.3 m high. Coastal and near coastal sites growing in sand over limestone in coastal heaths and thickets usually dominated by species of Melaleuca and Acacia (Thiele 2019).	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, TPFL, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Droseraceae	*Drosera occidentalis*	P4		This is a species of rosetted, perennial herb with white flowers. It has a preference for grey-brown sandy clay soils and is typically found in seasonally flooded flats and wetlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Ericaceae	*Andersonia gracilis*	VU	EN	Slender erect or open straggly shrub, 0.1-0.5(-1) m high. Fl. white-pink-purple, Sep to Nov. White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	PMST, WAHerb, Naturemap
Ericaceae	*Leucopogon sp. Busselton*	P2		A larger species of spreading shrub growing to 1m tall, with single stems and white flowers occurring from September to November. The species has a preference for dark and wetter, moistened sandy soils, and is found typically within seasonal swamps and flooded flats.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Ericaceae	*Styphelia filifolia*	P3		This is a species of erect, well-branched shrub with white flowers and distinctive, asymmetric green fruit. It has a preference for deep, yellow sands and is typically found along flat sandplains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Euphorbiaceae	*Beyeria cinerea* subsp. *cinerea*	P3		Dioecious or sometimes monoecious, open spreading, erect or prostrate shrubs to 0.7 m high (Halford and Henderson 2008).	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL WAHerb Naturemap
Fabaceae	*Acacia aphylla*	EN	EN	This is a larger species of blue-grey shrub reaching 2m tall with flowers that are more brightly yellow than other Acacia species. It has a preference for clay loam and laterite soils and is typically found along ridges and granite outcrops.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Fabaceae	*Acacia benthamii*	P2		Shrub, ca 1 m high. Fl. yellow, Aug to Sep. Sand. Typically on limestone breakaways.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Fabaceae	*Acacia declinata*	P4		A spreading, open shrub species growing up to 50 cm high and 1 m across, with anther filaments bright yellow and bright yellow flowers occurring between August and December. The species has a preference for loam-type soils as well as both flats and slopes.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Fabaceae	*Acacia denticulosa*	VU	VU	Erect, diffuse, spindly shrub, 1-4 m high. Fl. yellow, Sep to Oct. Sand, loam, clay. Granite outcrops, rarely on sandplains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Fabaceae	*Acacia drummondii subsp. elegans Porongurup variant*	P4		A medium shrub species growing up to 3 m high, with flowers pale yellow and elongated, occurring from August and December. The species has a preference for clay-based soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Fabaceae	*Acacia horridula*	P3		Harsh, slender, single-stemmed shrub, 0.3-0.6(-1) m high. Fl. yellow, May to Aug. Gravelly soils over granite, sand. Rocky hillsides.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Fabaceae	*Acacia inophloia*	P3		A larger species of shrub growing up to 3.5 m tall, with red, straggly, minni ritchi bark, furry pods and small yellow flowers occurring between August and December. The species has a preference for sand and granite soil types.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Fabaceae	*Acacia lasiocarpa var. bracteolata long peduncle variant*	P1		This is an open, spiky and slender shrub species, growing up to 1.5m tall. The soil preference for this species varies from gravel-like sands to brown sandy loams and has been most often located along flat plains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Fabaceae	*Acacia leptospermoides subsp. obovata*	P2		A medium sized erect shrub species growing up to 2m high and 0.75m wide with flowers yellow, occurring between July and December. The species has a preference for sandy soils and sandplain and hillside terrains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Fabaceae	*Acacia pharangites*	EN	EN	A rare species of sparse, spindly, open shrub growing up to 2.5 m high and 0.5 m wide with yellow flowers occurring between August and December. The species has a preference for darker coloured, loamy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Fabaceae	*Acacia sp. Yinnetharra*	P1		A medium-sized tree growing up to 12m, mostly 8m tall, with woody grey fissured bark, long and weeping phyllodes and bright yellow flowers with a preference for red clay soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Fabaceae	*Dillwynia dillwynioides*	P3		Decumbent or erect, slender shrub, 0.3-1.2 m high. Fl. red & yellow/orange, Aug to Dec. Sandy soils. Winter-wet depressions.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	Naturemap, WAHerb
Fabaceae	*Jacksonia gracillima*	P3		This is a species of low spreading shrub with distinct grey-green and pungent branchlets with orange flowers. The species has a preference for grey-brown sandy loam soils and has been recorded in both low-lying sandplains and floodplains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	Naturemap, WAHerb
Fabaceae	*Jacksonia sericea*	P4		Low spreading shrub, to 0.6 m high. Fl. orange, usually Dec or Jan to Feb. Calcareous & sandy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL WAHerb, Naturemap
Fabroniaceae	*Fabronia hampeana*	P2		A white species of fertile moss typically found on mid-sized tree trunks within Banksia woodlands. The stems of the tree species typically need to be well developed and large enough to provide shade for persistence.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL, WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Goodeniaceae	*Dampiera triloba*	P3		Erect perennial, herb or shrub, to 0.5 m high. Fl. blue, Aug to Dec. Dark brown/black peaty soils, edge of wetlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	Naturemap, WAHerb
Haemodoraceae	*Anigozanthos viridis* subsp. *terraspectans*	VU	VU	Rhizomatous, perennial, herb, 0.05-0.2 m high. Fl. green/yellow-green, Aug to Sep. Grey sand, clay loam. Winter-wet depressions.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	PMST
Haemodoraceae	*Conostylis bracteata*	P3		Rhizomatous, tufted or shortly proliferous perennial, grass-like or herb, 0.2-0.45 m high. Fl. yellow, Aug to Sep. Sand, limestone. Consolidated sand dunes.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Haloragaceae	*Haloragis scoparia*	P1		This is a species of perennial herb reaching up to 50cm tall and with noticeably red stems and bright red and green leaves. The species has a strong preference for clay loam soils and has most typically been found along plains and flats, particularly within Yalgorup National Park.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Hemerocallidaceae	*Johnsonia pubescens* subsp. *cygnorum*	P2		Tufted perennial, herb, 0.15-0.25 m high. Fl. white-green, Sep. Grey-white-yellow sand. Flats, seasonally-wet sites.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	Naturemap,TPFL,
Lamiaceae	*Dicrastylis micrantha*	P3		Spreading shrub, 0.4-1 m high, stem hairs dentritic, to 1.3 mm long, with a single terminal gland and sub-basal whorl of branches. Fl. white, Sep to Dec. Red sand. Sandplains.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Lamiaceae	*Hemigenia exilis*	P4		A sparsely leaved, erect, woody, divaricate open shrub species growing up to 1.5m tall and with purple flowers occurring between September and December. The species has a preference for red and brown clay soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Macarthuriaceae	*Macarthuria keigheryi*	EN	EN	Erect or spreading perennial, herb or shrub, 0.2-0.4 m high, 0.3-0.6 m wide. Fl. Sep to Dec or Feb to Mar. White or grey sand.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, PMST TPFL
Malvaceae	*Lasiopetalum bracteatum*	P4		This is a species of erect, single stemmed shrub with visibly bright pink flowers and growing to 1 metre tall. It has been shown to prefer sandy granite soil types and has most commonly been recorded along hilltop and outcrops.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Malvaceae	*Lasiopetalum glutinosum* subsp. *glutinosum*	P3		Shrub to 1.5 m. Fl. pink-purple. Granite outcrops, granitic soils, clayey sand with laterite.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Malvaceae	*Commersonia erythrogyna*	EN	EN	This is a rare species of erect, single stemmed shrub growing up to 1.5m tall and 2m wide with spindly plants and a preference for brown, peaty soils and hillsides and slopes.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Malvaceae	*Lasiopetalum membranaceum*	P3		Multi-stemmed shrub, 0.2-1 m high. Fl. pink-blue-purple, Sep to Dec. Sand over limestone.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL WAHerb, Naturemap
Menyathaceae	*Ornduffia submersa*	P4		An aquatic, perennial floating herb species typically found in shallow water with prominent white flowers. The species prefers seasonally inundated creeks and wetlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb
Montiaceae	*Calandrinia uncinella*	P1		A semi-erect succulent herb species with reddish fruits and white flowers. The species prefers silty loam and clay soils and is typically found in wet, seasonal inundated plains and flats.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Babingtonia urbana*	P3		An open, sprawling shrub species reaching a maximum of 1m tall with numerous slender branches and pink flowers. It prefers dark, brown clay soils and has typically been found in swamps and seasonally wet flats.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Calothamnus graniticus* subsp. *leptophyllus*	P4		Erect, multi-stemmed shrub, 1-2 m high. Fl. red, Jun to Aug. Clay over granite, lateritic soils. Hillsides.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Calothamnus macrocarpus*	P2		Erect shrub, 0.4-2(-3) m high. Fl. red, Feb or Apr or Aug to Dec. Rocky quartzite soils, sand. Slopes.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Calytrix breviseta subsp. breviseta*	EN	EN	A sprawling, open shrub species growing up to 40 cm high and 30 cm across, with tiny clubbed leaves 1 - 2 mm long, and purple flowers occurring from September to April. There is a species preference for lighter coloured sandy loam soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	PMST
Myrtaceae	*Calothamnus macrocarpus*	P4		A species of slender, erect shrub with single stem at base, growing up to 3-4 m high and 3 m wide, with red flowers occurring between July and January. The species has a preference for sandier soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Chamelaucium erythrochlorum*	P4		An erect, compact, perennial shrub species growing up to 70 cm high and 80 cm wide, with red flowers occurring between September and February. The species prefers both sandy and gravel-type soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Chamelaucium floriferum subsp. diffusum*	P2		A perennial compact shrub species growing up to 1.7m tall and 1.5m wide, with white flowers occurring between May and January. The species has a preference for darker sandy and gravel-type soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Darwinia acerosa*	EN	EN	A rare species of low spreading shrub growing up to 0.5m high and 1.0m wide, with pink and green flowers occurring between August and December. The species has a preference for darker soils and has most often been found within hills and slopes.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Darwinia leiostyla*	P4		A species of slender, erect shrub growing up to 0.5m-1 m tall. Flower heads nodding and varying in colour from pale to deep pink from September to December. The species has a preference for rocky and clay-based soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Darwinia masonii*	EN	EN	This is rare, erect shrub species growing to between 0.5 to 1.6 m tall, with flowers red in colour occurring between September and December. The species has a preference for orange and brown loam-type soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Darwinia sp. Gibson*	P1		A species of multi-stemmed, spreading shrub with erect new growth, growing up to 50cm tall and with yellow flowers occurring from June to December. The species has a preference for darker coloured loam soils and has often been located within salt-plains and salt-lakes.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Darwinia sphaerica*	P2		A species of compact, low shrub, growing up to 30 cm high and 45 cm wide, with flowers white, and strongly and sweetly scented, that occur between August and December.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Darwinia wittwerorum*	EN	EN	A rare species of 40cm tall, upright, bushy multi-stemmed woody shrub, with linear leaves deep green in colour, and flowers with red and cream bracts occurring between August and December. The species has a preference for clay and loam soils and has often been found along slopes and gullies.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Eucalyptus caesia subsp. boodjin*	P2		An erect, open Mallee tree species, reaching 5m high and 3m wide, with bark that is minni-ritchi in type, and smooth upper trunk. The species has often been found within granite outcrops and granite-based terrain.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Eucalyptus caesia subsp. caesia*	P4		A species of sprawling Mallee growing up to 11m tall. Bark is minni-ritchi in type throughout, with the leaves slightly glossy, and dark olive green in colour. The species has a preference for granite-based terrain and courser sandy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Eucalyptus caesia subsp. magna*	P4		A species of sprawling Mallee growing up to 16m tall, with bark amorphic at base of larger mallees, otherwise minni-ritchi in bark type and reddish in colour. The leaves are dull and blue-green in colour. The species has a preference for granite-based terrain and courser sandy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Eucalyptus educta*	P2		(Straggling & spreading mallee), 3-5 m high, bark rough, 'minni-ritchi'. Fl. cream-yellow, Apr. Shallow soils. Granite rocks.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Eucalyptus foecunda* subsp. *foecunda*	P4		(Mallee) or tree (occasionally), to 5 m high, bark smooth above with rough flaky bark at base, grey over pale copper. Fl. white-cream, Aug or Jan to Feb. White, grey, yellow, brown, orange or red sand over limestone. Sand dunes and plains, limestone ridges, cliffs & hills, road verges.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Eucalyptus kruseana*	P4		A species of open Mallee growing up to 5 m tall, with bark rougher in texture on lower stems. All parts glaucous, and flowers are yellow in colour with a species preference for red-brown loam-type soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Eucalyptus rhodantha var. rhodantha*	EN	EN	A rare species of Mallee tree with silver grey leaves growing up to 5m tall with red flowers occurring between September and December. There appears to be a preference for darker coloured, sandy loam soils but it is relatively poorly studied.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Eucalyptus x balanites*	EN	EN	An erect, open mallee species averaging 2-5m tall, with rough grey-brown bark and orange oil glands. The species prefers gravel-type, grey sands and has typically low abundance levels, with most recordings along gentle slopes of open woodland.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	PMST
Myrtaceae	*Eucalyptus x mundijongensis*	P1		Tree, to 25 m high, bark fibrous, fissured, grey; branchlets smooth. Loam. Paddocks.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	TPFL WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Hypocalymma inopinatum*	P2		A species of spindly, erect shrub growing up to 1.5m tall with flowers pink in colour occurring between September and December. There appears to be a preference for white, shallow sandy soils, although records and studies are comparatively few.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Hypocalymma magnificum*	EN	EN	A rare species of open, erect to spreading, woody multi-stemmed, medium sized shrub growing from up to 60 cm tall and 40cm wide with pink flowers occurring between August and December.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Hypocalymma quadrangulare*	P3		A low-lying, erect shrub species growing up to 0.7m tall with yellow flowers occurring between September and December. The species has most often been found within Banksia woodlands.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Malleostemon nephroideus*	P3		A species of low ,compact, rounded shrub, growing up to 0.5 m high and 1m wide with pink flowers occurring between September and December. The species has a preference for sandplains and lighter coloured sandy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Pileanthus bellus*	P3		This is an open, slender, branching shrub species growing up to 3m high and 1 m wide with flowers pink in colour occurring between September and December. The species has a preference for white and yellow, lighter coloured coloured sandy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb
Myrtaceae	*Verticordia amphigia*	P3		An erect species of shrub growing up to 1m high, with frilly-edged petals and yellow flowers occurring between September and January. The species has a preference for darker coloured clay soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Verticordia citrella*	P2		This is a species of erect, slender shrub growing uo to 70cm tall with a single stem and with flowers yellow in colour occurring from September to January. The species has a preference for gravel and loam-based soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Verticordia dasystylis subsp. kalbarriensis*	P3		A species of dense, small shrub growing up to 50cm tall, compact in nature with small white flowers occurring between September to April. The species has a preference for heavy clay-based soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Verticordia fragrans*	P3		An erect, sprawling shrub species growing up to 1.5m tall with pale pink flowers occurring between June and December. The species has shown a preference for deep, white and grey sandy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WA Herb, Naturemap
Myrtaceae	*Verticordia galeata*	P2		A species of erect, rounded shrub growing up to 70 cm tall, with flowers yellow in colour, occurring between September and December. The species has a preference for red and brown sandy soils and sandstone-based terrain.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Verticordia halophila*	P2		An erect, low-lying shrub species growing up to 75 cm high with flowers pink in colour, occurring between September and December. The species has a preference for open scrublands and white, sandy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Myrtaceae	*Verticordia lindleyi* subsp. *lindleyi*	P4		A species of slender, erect, dwarf shrub with low-spreading twigs reaching 50cm tall and with pink and purple flowers. The species has a preference for deep, grey sandy soils and is most often found along flat sand-plains among Melaleuca and Eucalypt communities.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	Naturemap, TPFL, WAHerb

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Myrtaceae	*Verticordia polytricha*	P4		This is a multi-branched shrub species growing up to 1.4 m tall and with creamy-white flowers, occurring between September and December. The species has a particular preference for sandy soils.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb, Naturemap
Orchidaceae	*Caladenia huegelii*	CR	EN	Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green & cream & red, Sep to Oct. Grey or brown sand, clay loam.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	WAHerb PMST, Naturemap 10km
Orchidaceae	*Diuris drummondii*	VU	VU	Tuberous, perennial, herb, 0.5-1.05 m high. Fl. yellow, Nov to Dec or Jan. Low-lying depressions, swamps.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	PMST, Naturemap PMST, WAHerb

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Orchidaceae	*Diuris micrantha*	VU	VU	Tuberous, perennial, herb, 0.3-0.6 m high. Fl. yellow & brown, Sep to Oct. Brown loamy clay. Winter-wet swamps, in shallow water.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	**Highly Unlikely.** No suitable habitat occurs, no DBCA records are present within 10km of the current Survey Areas and the Survey Areas is to the very outer limits of the species' known range.	PMST
Orchidaceae	*Diuris purdiei*	EN	EN	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. yellow, Sep to Oct. Grey-black sand, moist. Winter-wet swamps.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	PMST, WAHerb
Orchidaceae	*Drakaea elastica*	CR	EN	Tuberous, perennial, herb, 0.12-0.3 m high. Fl. red & green & yellow, Oct to Nov. White or grey sand. Low-lying situations adjoining winter-wet swamps.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	PMST, TPFL, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Orchidaceae	*Drakaea micrantha*	EN	VU	Tuberous, perennial, herb, 0.15-0.3 m high. Fl. red & yellow, Sep to Oct. White-grey sand.	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	**Unlikely** No suitable habitat present within Survey Areas	PMST, WAHerb
Orchidaceae	*Thelymitra stellata*	EN	EN	Tuberous, perennial, herb, 0.15-0.25 m high. Fl. yellow & brown, Oct to Nov. Sand, gravel, lateritic loam.	**Highly Unlikely.** Species habitat (sandy laterite substrates) does not occur within the Survey Areas. No previous record within 5 km.	**Highly Unlikely.** Species habitat (sandy laterite substrates) does not occur within the Survey Areas. No previous record within 5 km.	**Highly Unlikely.** Species habitat (sandy laterite substrates) does not occur within the Survey Areas. No previous record within 5 km.	PMST
Orchidaceae	*Thelymitra variegata*	P2		Tuberous, perennial, herb, 0.1-0.35 m high. Fl. orange & red & purple & pink, Jun to Sep. Sandy clay, sand, laterite.	**Unlikely**. Species habitat (sandy laterite substrates) unlikely to occur within the Survey Areas. No previous record within 5 km.	**Unlikely**. Species habitat (sandy laterite substrates) unlikely to occur within the Survey Areas. No previous record within 5 km.	**Unlikely**. Species habitat (sandy laterite substrates) unlikely to occur within the Survey Areas. No previous record within 5 km.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Phyllanthaceae	*Poranthera moorokatta*	P2		Erect annual herb, 16 mm to 47 mm tall It grows in open Banksia menziesii -B. attenuata woodland on white silica sand in open spaces between shrubs, not in shaded areas or in areas of high litter cover (Barrett 2012)	**Unlikely.** Habitat required for this species was not recorded within the Survey Areas, additionally Survey Areas is too degraded to support this species.	**Unlikely.** Habitat required for this species was not recorded within the Survey Areas, additionally Survey Areas is too degraded to support this species.	**Unlikely.** Habitat required for this species was not recorded within the Survey Areas, additionally Survey Areas is too degraded to support this species.	WAHerb, Naturemap
Poaceae	*Austrostipa mundula*	P3		Perennial tufted grass to 0.7 m. In association with limestone.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	Naturemap, WAHerb
Proteaceae	*Adenanthos cygnorum subsp. chamaephyton*	P3		A species of decumbent, prostrate shrub, reaching and average of 50 cm high, with leaves dark green and flowers greenish in colour occurring between September and March. The species has a preference for laterite-type soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Proteaceae	*Banksia anatona*	EN	EN	A tall, upright and prickly-leaved shrub growing up to 2m tall, with dense light green leaves and yellow flowers occurring between September and April. The species has a preference for grey and white sandy soils, though is increasingly rare and uncommon.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Banksia arborea*	P4		A species or erect, tall shrub growing up to 5m tall with prominent yellow flowers occurring from September to April. The species appears to be tolerant of a number of different soil types as well as ironstone formations and outcrops.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Banksia bella*	P4		A species of erect, perennial, compact shrub growing up to 1m high and 1.5m wide, with yellow flowers occurring between September to April. The species has a preference for gravel-type soils and ironstone formations.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Banksia densa*	P2		A species of compact, upright shrub growing up to 80cm with several stems. The leaves more or less glaucous and the flowers are pale yellow, and scented, occurring between August and February.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Proteaceae	*Banksia epimicta*	P2		A species of prostrate, spreading shrub with underground stem, averaging 30m high and 50cm wide. Flower bracts are large up to 8 cm long, and yellow in colour, occurring between August and February. The species has a preference for brown, sandy loam soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Banksia fraseri var. oxycedra*	P3		A species of tall, erect spreading shrub growing up to 3m high and 2 m wide, with both yellow-to-orange flowers occurring between August and February. There is a species preference for gravel-type soils and laterite landscapes.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Banksia lepidorhiza*	EN	EN	This is a rare species of prostrate species of shrub growing up to 30cm, with underground stems and buds, dull-green leaves and yellow flowers typically occurring between August and November. The species has a particular preference for gravelly sands.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Proteaceae	*Banksia nivea subsp. uliginosa*	EN	EN	An erect, compact, underground stemmed, perennial shrub species reaching a height of 50 cm tall and width to 50 cm with prominent flowers yellowish-red in colour with a strong sweet smell, occurring between July and February. The species has a preference for clay soils over laterite formations.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Banksia oligantha*	EN	EN	An erect shrub species growing up to 3m tall with bark that is grey and fissured at the base and lower parts of branches, and becoming smooth in upper parts, and with yellowish flowers occurring between June and December. The species has a preference for grey and white sandy soils and sharing areas with other Banksia-dominated woodlands and shrublands.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Banksia pteridifolia subsp. vernalis*	P3		A prostrate shrub species reaching approximately 30cm high, with yellow inflorescences and blue-green leaves. It inhabits areas of varying dry sandy soils and has often been recorded on hillsides and slopes amongst other Banksia species.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Proteaceae	*Banksia serratuloides subsp. perissa*	EN	EN	A rare species of erect, compact shrub growing up to 1m high and 1m wide, with yellow flowers occurring between August and December. The species has a preference for white and grey sandy soils over laterite formations.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Banksia montana*	EN	EN	An increasingly rare species of erect, spindly shrub, growing up to 2.5m tall and 1m wide, with a long leafless stem and yellow flowers occurring between August and December. The species has a preference for darker coloured, sandy clay and can be found amongst rockier and hillier terrain.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Banksia shanklandiorum*	P4		A species of dense shrub growing to 1.5 m high and 1 m wide with large yellow flowers with brown bracts, occurring between July and December, and leaves that are prickly, large and long. There is a species preference for brown and white sandy soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Proteaceae	*Banksia squarrosa subsp. argillacea*	EN	EN	A rare species of large, sprawling shrub growing up to 3 m tall with yellow flowers occurring from May to December. The species has been recorded in a variety of soil types and has often been found within laterite and ironstone terrains.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Conospermum undulatum*	VU	VU	Erect, compact shrub, 0.6-2 m high. Fl. white-other, May to Oct. Grey or yellow-orange clayey sand.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	PMST, Naturemap TPFL, WAHerb
Proteaceae	*Grevillea asparagoides*	P3		A species of erect shrub growing up to 2m tall with leaves around 3.5cm long that are rigid, narrow, with divided inflorescence, and red flowers occurring between June and December. There is a species preference for yellow and brown sandy soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Grevillea batrachioides*	EN	EN	An increasingly rare and uncommon, erect shrub species averaging 1m tall, with large, pale red flowers, with leaves that are pungent, and deeply lobed. It has been most often recorded on sandstone outcrops and sloping terrain.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Proteaceae	*Grevillea curviloba*	EN	EN	Prostrate to erect shrub, 0.1-2.5 m high. Fl. white-cream, Aug to Oct. Grey sand, sandy loam. Winter-wet heath.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	Naturemap PMST, WAHerb
Proteaceae	*Grevillea granulosa*	P3		An erect, compact shrub species growing up to 1m tall and 1m across with red flowers occurring between August and November. The species has a preference for grey and sandy loam type soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Grevillea maxwellii*	EN	EN	A rare species of erect, spreading shrub growing up to 1m tall, with red flowers occurring between August and November. There is a preference for darker loam-clay soils and rocky terrains.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Grevillea pimeleoides*	P4		This is a comparatively rare single-stemmed Grevillia species growing to 2m in height. It has typically been found among powder-bark wandoo woodland communities, and more often in dry and gravel-type soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Proteaceae	*Grevillea thelemanniana*	CR	CR	This is a very rare, large, spreading shrub species, growing over 1.5 metres tall, with divided leaves and prominent red flowers. It has a preference for clay-type soils and is typically restricted to wet swamplands and seasonal wetlands.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	TPFL, WAHerb, Naturemap
Proteaceae	*Grevillea ornithopoda*	P2		Slender, erect shrub to 3 m. Riverbanks, dunes, creek edge in red brown loam over clay.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	Naturemap, WAHerb
Proteaceae	*Grevillea prostrata*	P4		A species of spreading, prostrate shrub reaching up to 1m in diameter, with stems partly buried in the ground and with white flowers with pink fringes and fern-like leaves. There is a species preference for brown and yellow sandy soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Grevillea pythara*	EN	EN	A rare, highly localised, root suckering shrub species reaching a maximum of 30cm tall, with flowers orange-pale red in colour occurring from August to November. The species has a preference for brown, sandy loam soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Proteaceae	*Hakea brachyptera*	P3		A species of low, dwarf-shrub species growing to a maximum of 1m high and 1m wide, and with pink flowers occurring between September and November. The species has a preference for white, sandy soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Isopogon autumnalis*	P3		A multi-stemmed open shrub species growing to 1m tall with pale yellow flowers. The species can be found typically in dry, yellow to grey sandy soils, and along flats and well drained plains.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Lambertia echinata subsp. echinata*	EN	EN	A prickly shrub species reaching a maximum of 1.5m tall with rough, fissured, grey bark, stems to 10 cm in diameter, and leaves that are trident shaped. The flowers are orange-red in colour and occur between September and November. The species has a preference for brown loam-type soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Lambertia echinata subsp. occidentalis*	EN	EN	A rare and increasingly uncommon, tall shrub species growing up to 2.5m, with pungent pointed leaves ranging from entire to trident shaped, and yellow flowers occurring from April to December. There is a species preference for grey and white sandy soils.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Proteaceae	*Persoonia chapmaniana*	P3		A species of slender, erect shrub growing to 2m high, with flowers that are yellow to orange in colour occurring between September and November. The species has a preference for sandy soils of varying colours and has mostly been recorded in open woodlands.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Proteaceae	*Synaphea* sp. Fairbridge Farm (D. Papenfus 696)	CR	CR	Dense, clumped shrub, to 0.3 m high, to 0.4 m wide. Fl. yellow, Oct. Sandy with lateritic pebbles. Near winter-wet flats, in low woodland with weedy grasses.	**Highly Unlikely.** Species habitat (sandy laterite substrates) does not occur within the Survey Areas. No previous record within 10 km.	**Highly Unlikely.** Species habitat (sandy laterite substrates) does not occur within the Survey Areas. No previous record within 10 km.	**Highly Unlikely.** Species habitat (sandy laterite substrates) does not occur within the Survey Areas. No previous record within 10 km.	PMST
Pteridaceae	*Adiantum capillus-veneris*	P2		Rhizomatous, perennial, herb or (fern), 0.1-0.2 m high, frond 1-2-pinnate; stipe blackish-brown, hard, glossy; sori marginal between sinuses, oblong. Moist, sheltered sites in gorges and on cliff walls.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	**Unlikely**. No suitable habitat recorded within the Survey Areas.	Naturemap, WAHerb

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Restionaceae	*Hypolaena robusta*	P4		Dioecious rhizomatous, perennial, herb, ca 0.5 m high. Fl. Sep to Oct. White sand. Sandplains.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Rutaceae	*Boronia clavata subsp. clavata*	EN	EN	A rare sub-species of erect shrub growing to 2m tall, with yellowish-green flowers occurring from September to December. The species prefers sandy loam soils and has been recorded often along alluvial plains.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Rutaceae	*Cyanothamnus tenuis*	P4		Procumbent to erect shrub to 0.4 m high. Granite, laterite.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	Naturemap, WAHerb
Sapindaceae	*Dodonaea hackettiana*	P4		Erect shrub or tree, 1-5 m high. Fl. yellow-green/red, mainly Jul to Oct. Sand. Outcropping limestone.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	TPFL WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Scrophulariaceae	*Eremophila glabra subsp. chlorella*	EN	EN	This is a rare, woody, dense shrub species growing to 60cm tall with green fruits and yellow-green flowers. It can be found in soils that are both sandy grey and clay-based, and have been sparsely recorded within seasonal wetlands and dampened flats and plains.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	PMST, TPFL, WAHerb, Naturemap
Scrophulariaceae	*Eremophila lucida*	P1		A species of tall, slender and spindly shrub growing up to 3m high and 2m wide, with bark that is rough and fissured at the base but otherwise smooth. Flowers are light pink in colour and occurring between September and November. The species has a preference for light brown sandy soils.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Stylidiaceae	*Stylidium aceratum*	P3		A small, erect, annually occurring herb species reaching up to 8cm tall with pink flowers. The species has a preference for lightly coloured clay soils and seasonal wetlands and seasonally inundated flats.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	WAHerb, Naturemap
Stylidiaceae	*Stylidium longitubum*	P4		A species of annually occurring, small erect shrub, not exceeding 10cm in height, and with white and purple flowers. The species has a preference for lightly coloured clay soils and seasonal wetlands and seasonally inundated flats.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	TPFL, WAHerb, Naturemap

Family	Taxon	BC Act/ DBCA	EPBC Act	Description	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
Stylidiaceae	*Stylidium maritimum*	P3		Caespitose perennial, herb, 0.3-0.7 m high. Occurs on sand over limestone. Dune slopes and flats. Coastal heath and shrubland, open Banksia woodland.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	Naturemap, WAHerb, TPFL
Stylidiaceae	*Stylidium paludicola*	P3		Reed-like perennial, herb, 0.35-1 m high, Inflorescence racemose. Fl. pink, Oct to Dec. Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	Naturemap, WAHerb
Thymelaeaceae	*Pimelea calcicola*	P3		Erect to spreading shrub, 0.2-1 m high. Fl. pink, Sep to Nov. Sand. Coastal limestone ridges.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	Naturemap, WAHerb
Stylidiaceae	*Levenhookia preissii*	P1		Annual (ephemeral), herb, 0.03-0.17 m high. Fl. pink-red, Sep to Dec or Jan. Grey or black, peaty sand. Swamps.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	**Unlikely.** No suitable habitat recorded within the Survey Areas.	Naturemap, WAHerb

Significant Tree Data Across all Survey Sites of the Survey Area

Site Name	Tree ID	Classification (Native or Non-Native)	Species	Fauna Use/Fauna Significance	Latitude	Longitude	DBH (mm)	Datum	Accuracy
Matilda Bay	DBH18	Native	*Corymbia calophylla*	Potential Black Cockatoo Foraging/Feeding and Breeding Tree, native bird species resting and foraging habitat	-31.9800	115.8203	716	GDA2020	+/- 5m
Matilda Bay	DBH19	Native	*Corymbia calophylla*	Potential Black Cockatoo Foraging/Feeding and Breeding Tree, native bird species resting and foraging habitat	-31.9795	115.8208	670	GDA2020	+/- 5m
Matilda Bay	DBH20	Native	*Eucalyptus gomphocephala*	Potential Black Cockatoo Foraging/Feeding and Breeding Tree, native bird species resting and foraging habitat	-31.9796	115.821	764	GDA2020	+/- 5m
Matilda Bay	REPLANTED1	Native	*Melaleuca lanceolata*	Potential native bird resting, nesting and foraging habitat	-31.9799	115.8204	859	GDA2020	+/- 5m
Matilda Bay	REPLANT2	Native	*Agonis flexuosa x 2*	Potential native bird resting, nesting and foraging habitat	-31.9794	115.8205	878 ave	GDA2020	+/- 5m
Matilda Bay	REPLANT3	Native	*Melaleuca lanceolata*	Potential native bird resting, nesting and foraging habitat	-31.9801	115.8203	750	GDA2020	+/- 5m
Matilda Bay	SHORE1	Non-Native	*Plantanus x acerifolia x 4*	Potential native bird resting and nesting habitat	-31.9803	115.821	725 ave.	GDA2020	+/- 5m

Appendix E

Fauna data

E-1 Fauna species list

E-2 Fauna Likelihood of occurrence assessment

Opportunistic Fauna Species List by Species Group – Elizabeth Quay

Common name	Scientific name	Status	Record type	Frequency
Birds				
Darter	*Anhinga novaehollandiae*	Native	Observed	3
Domestic Pigeon	*Columba livia*	**Int.**	Observed	7
Pied Cormorant	*Microcarbo melanoleucos*	Native	Observed	1
Silver Gull	*Chroicocephalus novaehollandiae*	Native	Observed	12

Opportunistic Fauna Species List by Species Group – Applecross

Common name	Scientific name	Status	Record type	Frequency
Birds				
Australian Pelican	*Pelecanus conspicillatus*	Native	Observed	2
Australian Raven	*Corvus coronoides*	Native	Heard Calling	1
Black Swan	*Cygnus atratus*	Native	Observed	15
Darter	*Anhinga novaehollandiae*	Native	Observed	3
Rainbow Lorikeet	*Trichoglossus moluccanus*	**Int.**	Observed	4
Silver Gull	*Chroicocephalus novaehollandiae*	Native	Observed	7
Whistling Kite	*Haliastur sphenurus*	Native	Observed	1
White-faced Heron	*Egretta novaehollandiae*	Native	Observed	1
Mammals				
Indo-Pacific Bottlenose Dolphin	*Tursiops aduncus*	Native	Observed	4

Opportunistic Fauna Species List by Species Group – Matilda Bay

Common name	Scientific name	Status	Record type	Frequency
Birds				
Australian Magpie	*Gymnorhina tibicen*	Native	Observed	2
Australian Raven	*Corvus coronoides*	Native	Observed	4
Australian Wood Duck	*Chenonetta jubata*	Native	Observed	1
Black Swan	*Cygnus atratus*	Native	Observed	12
Long-billed Corella	*Cacatua tenuirostris*	**Int.**	Observed	20
Pacific Black Duck	*Anas superciliosa*	Native	Observed	61
Rainbow Lorikeet	*Trichoglossus moluccanus*	**Int.**	Observed	1
Red Wattlebird	*Anthochaera carunculata*	Native	Observed	10
Silvereye	*Zosterops lateralis*	Native	Observed	2

Common name	Scientific name	Status	Record type	Frequency
Silver Gull	*Chroicocephalus novaehollandiae*	Native	Observed	18
Willy Wagtail	*Rhipidura leucophrys*	Native	Observed	2

Fauna likelihood of occurrence assessment

Fauna likelihood of occurrence assessment guidelines

Assessment outcome	Description
Known	Species recorded during the field survey or from recent, reliable records from within or close proximity to the Survey Areas.
Likely	Species are **likely** to occur in the Survey Areas where there is suitable habitat within the Survey Areas and there are recent records of occurrence of the species in close proximity to the Survey Areas. OR Species known distribution overlaps with the Survey Areas and there is suitable habitat within the Survey Areas.
Possible	Species are **possible** to occur in the Survey Areas where there may be suitable habitat within the Survey Areas, or that suitable habitat does occur but in small quantities, and there are recent records of occurrence of the species in close proximity to the Survey Areas.
Unlikely	Species assessed as **unlikely** include those species previously recorded within 40 km of the Survey Areas however: There is limited (i.e. the type, quality and quantity of the habitat is generally poor or restricted) habitat in the Survey Areas. The suitable habitat within the Survey Areas is isolated from other areas of suitable habitat and the species has no capacity to migrate into the Survey Areas. OR Those species that have a known distribution overlapping with the Survey Areas however: There is limited habitat in the Survey Areas (i.e., the type, quality and quantity of the habitat is generally poor or restricted). The suitable habitat within the Survey Areas is isolated from other areas of suitable habitat and the species has no capacity to migrate into the Survey Areas.
Highly unlikely	Species that are considered highly unlikely to occur in the Survey Areas include: Those species that have no suitable habitat within the Survey Areas. Those species that have become locally extinct or are not known to have ever been present in the region of the Survey Areas.

Source information - desktop searches

NM – *DBCA NatureMap/Dandjoo* (accessed February 2025)

PMST – MNES Protected Matters Search Tool (PMST) to identify fauna listed under the EPBC Act potentially occurring within the Survey Areas (accessed February 2025).

Significant fauna – Likelihood of occurrence across Survey Area

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Actitis hypoleucos	Common Sandpiper	MI	MI	Habitat for the Common Sandpiper is varied: coastal and interior wetlands – narrow muddy edges of billabongs, river pools, mangroves, among rocks and snags, reefs or rocky beaches. Avoids wide open mudflats. This species is widespread and scattered, common on the north and west coasts and uncommon in the south-east and interior (Morcombe 2004).	**Unlikely.** Known to occur locally, within 5 km radius due to proximity to Lake Herdsman and Swan Rv estuarine habitat. However, Lake Monger lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** Known to occur locally, within 5 km radius due to proximity to Lake Herdsman and Swan Rv estuarine habitat. However, Lake Monger lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** Known to occur locally, within 5 km radius due to proximity to Lake Herdsman and Swan Rv estuarine habitat. However, Lake Monger lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Anous stolidus	Common Noddy	MI	MI	The Common Noddy is found in tropical and sub-tropical seas off the west, north and east coasts of Australia, from the Abrolhos Islands in WA to the islands of the Great Barrier Reef in Qld, as well as Norfolk and Lord Howe Islands. Some are seen almost annually in NSW as far south as Sydney. It also ranges across tropical parts of the Pacific, Indian and Atlantic Oceans (DCCEEW 2022).	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	PMST, DBCA
Anous tenuirostris melanops	Australian Lesser Noddy	VU	VU	The Australian subspecies of the Australian lesser noddy *A. t. melanops* breeds only on three islands in the Houtman Abrolhos, off Western Australia, where it nests in mangroves. The birds remain near the breeding islands all year (Higgins and Davies 1996).	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	PMST
Arenaria interpres	Ruddy Turnstone	VU, MI	VU, MI	In Australia, Ruddy Turnstones are widespread around the coast of the mainland and off-shore islands. They breed on the northern coasts of Europe, Asia and North America. They are found on coastlines around the world, when not breeding or on passage. They are found singly or in small groups along the coastline and only occasionally inland. They are mainly found on exposed rocks or reefs, often with shallow pools, and on beaches. In the north, they are found in a wider range of habitats, including mudflats (DEE 2019b).	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	PMST, DBCA
Ardenna carneipes	Flesh-footed Shearwater	MI	MI	The Flesh-footed Shearwater is a large (length 40–47 cm; wingspan 99–107 cm; weight 510–750 g), broad-winged, blackish-brown shearwater with dark brown irides, a pale-horn bill (tipped black) and flesh-pink legs and feet (Johnstone & Storr 1998; Marchant & Higgins 1990). Individuals are typically solitary at sea, although flocks of hundreds of birds can form around sources of food, and at dusk when individuals raft together offshore from their breeding islands (Bartle 1974; Johnstone & Storr 1998; Marchant & Higgins 1990; Warham 1958). The Flesh-footed Shearwater mainly occurs in the subtropics over continental shelves and slopes and occasionally inshore waters. Individuals also pass through the tropics and over deeper waters when on migration (Brooke 2004; Marchant & Higgins 1990;). Pairs breed on islands in burrows on sloping ground in coastal forest, scrubland, shrubland or grassland (Marchant & Higgins 1990).	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	PMST, DBCA
Ardenna grisea	Sooty Shearwater	VU, MI	VU, MI	The Sooty Shearwater is a large, robust sea bird, with a wingspan up to 105 cm and a weight of up to 1 kg. The head, upper body, upper wing and tail of the Sooty Shearwater are uniformly dark brown-grey. The Sooty Shearwater is found in the southern hemisphere during summer, where the species breeds around New Zealand, southern Australia and southern South America. During winter (non-breeding season) most birds move to the North Pacific Ocean, but some move into the North Atlantic Ocean, or remain in the southern hemisphere (Marchant & Higgins 1990). During the southern hemisphere summer, the species ranges from breeding islands south to Antarctic waters (as far as the iceberg-belt), although some remain in northern hemisphere. The Sooty Shearwater breeds mainly on subtropical and sub-Antarctic islands, as well as on the mainland of New Zealand. Birds nest in burrows or rock crevices on coastal slopes, ridges and cliff tops, in herbfields, tussock grassland or forest. Areas with waterlogged or shallow soils and/or dense vegetation are avoided.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	**Highly Unlikely.** No suitable habitat for the species occurs and records for the species are very few.	PMST, DBCA
Halobaena caerulea	Blue Petrel	VU	VU	The Blue Petrel has a global distribution throughout the southern oceans from the pack ice edge up to about 30 degrees south. Breeding sites include Macquarie Island (Australia); the Crozet and Kergeuelen Islands in the French Southern Territories; Marion and Prince Edward Islands (South Africa); South Georgia; Diego Ramirez Cape Horn, and the Hermite and Wollaston Groups of islands (Chile).	**Highly Unlikely.** No suitable habitat for the species occurs there are no species records within 10km of any of the Survey Areas.	**Highly Unlikely.** No suitable habitat for the species occurs there are no species records within 10km of any of the Survey Areas.	**Highly Unlikely.** No suitable habitat for the species occurs there are no species records within 10km of any of the Survey Areas.	PMST

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Ninox connivens connivens	Barking Owl (southwest population)	P3		The southwest subspecies of the Barking Owl is found in the lower south-west region and is very scarce. There is little known about the subspecies (Nevill 2008). Barking Owls are found in open woodlands and the edges of forests, often adjacent to farmland. They are less likely to use the interior of forested habitat. They are usually found in habitats that are dominated by eucalyptus species, particularly red gum, and, in the tropics, paperbark species. They prefer woodlands and forests with a high density of large trees and particularly sites with hollows that are used by the owls as well as their prey. Habitat preference is strongly biased towards areas that provide a high density of large trees greater than 60cm diameter and a high density of hollow trees of a range of sizes, including large hollows greater than 15cm diameter which are suitable nesting places for Barking Owls. Roost sites are often located near waterways or wetlands.	**Highly Unlikely.** The Survey Areas lacks suitable extensive forest or dense woodland scrub as it is located inner Perth metro area.	**Unlikely.** The Survey Areas lacks suitable extensive forest or dense woodland scrub as it is located inner Perth metro area.	**Unlikely.** The Survey Areas lacks suitable extensive forest or dense woodland scrub as it is located inner Perth metro area.	DBCA
Cacatua pastinator pastinator	Muir's Corella	CD		Muir's Corella lives in woodland on the drier, eastern side of the main forest block in the south west, in woodlands that are dominated by Wandoo (*E. wandoo*), Marri, (*Corymbia calophylla*), or Jarrah, (*Eucalyptus marginata*). Most suitable habitat for this species now consists of remnant patches that occur in or adjacent to farmland, or along roadsides, paddock boundaries or watercourses, and sometimes as a few, isolated shade trees in otherwise cleared paddocks (Garnett & Crowley 2000). The bird nests in large hollows in trees at least 160 years old. It now has a restricted distribution in the Tone Bridge, Rocky Gully, Frankland River and Lake Muir area (TSSC 2016a).	**Unlikely** Restricted to a localised area of the southern Jarrah forest, and recordings have been very rare and occasional as a vagrant occurrence.	**Unlikely.** Restricted to a localised area of the southern Jarrah forest, and recordings have been very rare and occasional as a vagrant occurrence.	**Unlikely.** Restricted to a localised area of the southern Jarrah forest, and recordings have been very rare and occasional as a vagrant occurrence.	DBCA, Naturemap
Calyptorhynchus banksia naso	Forest Red-tailed Black Cockatoo	Vu	Vu	Forest Red-tailed Black Cockatoo typically occurs in dense Jarrah (Eucalyptus marginata), Karri (E. diversicolor) and Marri (Corymbia calophylla) forests, however the species also occurs in a range of other forest and woodland types, including Blackbutt (E. patens), Wandoo (E. wandoo), Tuart (E. gomphocephala), Albany Blackbutt, Yate (E. cornuta), and Flooded Gum (E. rudis) (DSEWPaC, 2012). Habitats also tend to have an understorey of Banksia spp., Persoonia spp., Allocasuarina spp.The Forest red-tailed Black Cockatoo generally nests in hollows in live or dead trees of marri, karri, wandoo, bullich, blackbutt, tuart and jarrah (DSEWPaC 2012).	**Possible.** Numerous recordings within the Survey Areas with potentially suitable feeding and foraging trees nearby, and known roosting sites within 12km of the current Survey Areas.	**Possible.** Numerous recordings within the Survey Areas with potentially suitable feeding and foraging trees nearby, and known roosting sites within 12km of the current Survey Areas.	**Likely.** Numerous recordings within the Survey Areas with potentially suitable feeding and foraging trees nearby, and known roosting sites within 12km of the current Survey Areas.	PMST, DBCA
Zanda baudinii	Baudin's Cockatoo	En	En	Baudin's Black Cockatoo occurs in high-rainfall areas, usually at sites that are heavily forested and dominated by Marri (Corymbia calophylla) and Eucalyptus species, especially Karri (E. diversicolor) and Jarrah (E. marginata). The species also occurs in woodlands of Wandoo (E. wandoo), Blackbutt (E. patens), Flooded Gum (E. rudis), and Yate (E. cornuta) . Baudin's Black Cockatoo breeds in the Jarrah, Marri and Karri forests of the deep south-west in areas averaging more than 750 mm of rainfall annually. The range of the species extends from Albany northward to Gidgegannup and Mundaring (east of Perth), and inland to the Stirling Ranges and near Boyup Brook. Preferred roosts are in areas with a dense canopy close to permanent sources of water, that provide the birds with protection from weather conditions (DSEWPaC, 2012).	**Possible.** Known to occur locally at least on an occasional basis. Sometime as mixed flock with Carnaby's Cockatoo.	**Likely.** Known to occur locally at least on an occasional basis. Sometime as mixed flock with Carnaby's Cockatoo.	**Likely.** Known to occur locally at least on an occasional basis. Sometime as mixed flock with Carnaby's Cockatoo.	DBCA
Zanda latirostris	Carnaby's Cockatoo	En	En	This species mainly occurs in uncleared or remnant native eucalypt woodlands and in shrubland or kwongan heathland dominated by Hakea, Dryandra, Banksia and Grevillea species. The species also occurs in forests containing Marri (Corymbia calophylla), Jarrah (Eucalyptus marginata) or Karri (E. diversicolor). Breeding usually occurs in the Wheatbelt region of Western Australia, with flocks moving to the higher rainfall coastal areas to forage after the breeding season. Feeds on the seeds of a variety of native plants, including Allocasuarina, Banksia, Dryandra, Eucalyptus, Grevillea and Hakea, and some introduced plants (DSEWPaC, 2012).	**Possible.** Known to occur locally on a regular basis, although may not forage frequently due to paucity of foraging habitat. Numerous recordings within the Survey Areas with potentially suitable feeding and foraging trees nearby, and known roosting sites within 12km of the current Survey Areas.	**Likely.** Known to occur locally on a regular basis, although may not forage frequently due to paucity of foraging habitat. Numerous recordings within the Survey Areas with potentially suitable feeding and foraging trees nearby, and known roosting sites within 12km of the current Survey Areas.	**Likely.** Known to occur locally on a regular basis, although may not forage frequently due to paucity of foraging habitat. Numerous recordings within the Survey Areas with potentially suitable feeding and foraging trees nearby, and known roosting sites within 12km of the current Survey Areas.	DBCA

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		State	Federal					
Falco peregrinus	Peregrine Falcon	OS		The Peregrine Falcon is seen occasionally anywhere in the south-west of Western Australia. It is found everywhere from woodlands to open grasslands and coastal cliffs - though less frequently in desert regions. The species nests primarily on ledges of cliffs, shallow tree hollows, and ledges of building in cities. (Morcombe, 2004).	**Possible.** Known to occur locally based on nearby database records within urban and neighbourhood sites, though this will be more of a fly-over utilisation with regards to the current Survey Areas.	**Likely.** Known to occur locally based on nearby database records within urban and neighbourhood sites, though this will be more of a fly-over utilisation with regards to the current Survey Areas.	**Likely.** Known to occur locally based on nearby database records within urban and neighbourhood sites, though this will be more of a fly-over utilisation with regards to the current Survey Areas.	DBCA, Naturemap
Falco hypoleucos	Grey falcon	Vu		Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. (Birdlife International, 2023)	**Highly Unlikely.** The survey area is beyond the known range. Any occurrence would be as vagrant.	**Highly Unlikely.** The survey area is beyond the known range. Any occurrence would be as vagrant.	**Unlikely.** The survey area is beyond the known range. Any occurrence would be as vagrant.	DBCA
Leipoa ocellata	Malleefowl	Vu	Vu & Mi	The Malleefowl generally occurs in semi-arid areas of Western Australia, from Carnarvon to southeast of the Eyre Bird Observatory (south-east Western Australia). It occupies shrublands and low woodlands that are dominated by mallee vegetation, as well as native pine Callitris woodlands, Acacia shrublands, Broombush Melaleuca uncinata vegetation or coastal heathlands. The nest is a large mound of sand or soil and organic matter (Jones and Goth 2008; Morcombe, 2004).	**Highly Unlikely.** Locally and regionally extinct. Survey Areas is beyond the current known range and lack of suitable habitat.	**Highly Unlikely.** Locally and regionally extinct. Survey Areas is beyond the current known range and lack of suitable habitat.	**Highly Unlikely.** Locally and regionally extinct. Survey Areas is beyond the current known range and lack of suitable habitat.	PMST, DBCA
Tyto novaehollandiae subsp. novaehollandiae	Masked Owl (southern subsp)	P3		The Masked Owl is found across a range of habitats from wet sclerophyll forest, dry sclerophyll forest, non-eucalypt dominated forest, scrub and cleared land with remnant old growth trees. There are however several aspects of habitat preference which appear to be common: the Masked Owl requires large hollows in old growth eucalypts for nesting; it often favours areas with dense understorey or ecotones comprising dense and sparse ground cover, they are often recorded foraging within 100-300m of the boundary of two vegetation types (Bell & Mooney, 2002).	**Unlikely.** The Survey Areas lacks suitable extensive forest or dense woodland scrub as it is located in inner Perth metro area, and records within 10km of the Survey Areas are comparatively few.	**Unlikely.** The Survey Areas lacks suitable extensive forest or dense woodland scrub as it is located in inner Perth metro area, and records within 10km of the Survey Areas are comparatively few.	**Unlikely.** The Survey Areas lacks suitable extensive forest or dense woodland scrub as it is located in inner Perth metro area, and records within 10km of the Survey Areas are comparatively few.	DBCA
Apus pacificus	Fork-tailed Swift	MI	Mi	In south-west WA there are sparsely scattered records along the south coast, ranging from the Eyre Bird Observatory and west to Denmark. They are widespread in coastal and sub-coastal areas between Augusta and Carnarvon, including some on nearshore and offshore islands. This species is almost exclusively aerial, flying less than 1 m to at least 300 m above ground. This species is considered rare in the south-west region (DSEWPaC 2013).	**Unlikely.** Wide-ranging and occasionally recorded locally within close proximity to current Survey Areas, however forages aerially and would not utilise habitat currently found.	**Unlikely.** Wide-ranging and occasionally recorded locally within close proximity to current Survey Areas, however forages aerially and would not utilise habitat currently found.	**Unlikely.** Wide-ranging and occasionally recorded locally within close proximity to current Survey Areas, however forages aerially and would not utilise habitat currently found.	DBCA
Botaurus poiciloptilus	Australasian Bittern	En	En	The Australasian Bittern occurs mainly in densely vegetated freshwater wetlands and, rarely, in estuaries or tidal wetlands. The species favours foraging in tall, dense vegetation in shallow permanent or seasonal fresh water. In the southwest of Western Australia the Bittern is now largely confined to coastal areas especially along the south coast where it is found in beds of tall rush mixed with or near short fine sedge or open pools (Burbridge 2004). It also occurs around swamps, lakes, pools, rivers and channels fringed with lignum Muehlenbeckia, canegrass Eragrostis or other dense vegetation (Marchant & Higgins 1990). It occasionally ventures into areas of open water or onto banks.	**Unlikely.** Wetland habitat within Survey Areas is not suitable to sustain any population for feeding, foraging or breeding behaviour and records within 10km of the Survey Areas are relatively few. Any occurrence would be as vagrant.	**Unlikely.** Wetland habitat within Survey Areas is not suitable to sustain any population for feeding, foraging or breeding behaviour and records within 10km of the Survey Areas are relatively few. Any occurrence would be as vagrant.	**Unlikely.** Wetland habitat within Survey Areas is not suitable to sustain any population for feeding, foraging or breeding behaviour and records within 10km of the Survey Areas are relatively few. Any occurrence would be as vagrant.	DBCA

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		State	Federal					
Calidris acuminata	Sharp-tailed Sandpiper	MI	MI	In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves. Sometimes they occur on rocky shores (DotE 2016). They are found throughout many wetlands on the Swan Coastal Plain, in Perth lakes with wet grassed margins and receding waters, Vasse and Harvey Estuaries, and the Busselton wetlands, but are less common on the south coast until the Esperance region (Nevill 2013).	**Unlikely.** Known to occur locally, with historical recordings within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** Known to occur locally, with historical recordings within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** Known to occur locally, with historical recordings within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	DBCA
Calidris alba	Sanderling	MI	MI	In Australia, the species is almost always found on the coast, mostly on open sandy beaches exposed to open sea-swell, and also on exposed sandbars and spits, and shingle banks, where they forage in the wave-wash zone and amongst rotting seaweed. Sanderlings also occur on beaches that may contain wave-washed rocky outcrops. Less often the species occurs on more sheltered sandy shorelines of estuaries, inlets and harbours (DEE 2019b).	**Unlikely.** Known to occur locally, with historical recordings within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** Known to occur locally, with historical recordings within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** Known to occur locally, with historical recordings within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	PMST
Calidris canutus	Red Knot	VU, MI	VU, MI	In Australasia, the Red Knot mainly inhabits intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs. They are occasionally seen on terrestrial saline wetlands near the coast, such as lakes, lagoons, pools and pans, and recorded on sewage ponds and saltworks, but rarely use freshwater swamps. They rarely use inland lakes or swamps (DCCEEW 2022).They are found near mudflats and estuaries from Murchison to Bunbury but are then uncommon from Wilson Inlet to Esperance. In the Perth region they are mainly found in Alfred Cove and Peel Inlet (Nevill 2013).	**Unlikely.** The Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** The Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** The Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	PMST
Calidris pugnax	Ruff	MI	MI	In Australia, the Ruff is found on generally fresh, brackish of saline wetlands with exposed mudflats at the edges. It is found in terrestrial wetlands including lakes, swamps, pools, lagoons, tidal rivers, swampy fields and floodlands. They are occasionally seen on sheltered coasts, in harbours, estuaries, seashores and are known to visit sewage farms and saltworks. They are sometimes found on wetlands surrounded by dense vegetation including grass, sedges, saltmarsh and reeds. They have been observed on sand spits and other sandy habitats including shingles. The Ruff forages on exposed mudflats, in shallow water and occasionally on dry mud. They have been observed foraging in dry waterside plants and in swampy areas next to aeration tanks in sewage farms. They prefer to roost amongst shorter vegetation (Higgins & Davies 1996).	**Unlikely.** The Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** The Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely.** The Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	PMST
Calidris ferruginea	Curlew Sandpiper	Cr & IA	Cr & Mi	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters (DSEWPaC 2013).	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	DCBA

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Calidris melanotos	Pectoral Sandpiper	MI	MI	In Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. The species has also been recorded in swamp overgrown with lignum. They forage in shallow water or soft mud at the edge of wetlands (Higgins & Davies 1996).	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Calidris ruficollis	Red-necked Stint	IA	IA : Mi	The Red-necked Stint can be found in fresh and saline water, but primarily in coastal regions (Nevill 2013). It is mostly found in areas including sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores. Occasionally they have been recorded on exposed or ocean beaches, and on stony or rocky shores, reefs or shoals. They also occur in saltworks and sewage farms; saltmarsh; ephemeral or permanent shallow wetlands near the coast or inland, including lagoons, lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks and pools in saltflats. They have occasionally been recorded on dry gibber plains, with little or no perennial vegetation (DotE 2016). They are common in many parts of the southwest, and can be found in the Murchison down to Busselton and Augusta to Cape Arid, and on islands, particularly Rottnest (Nevill 2013).	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Calidris subminuta	Long-toed Stint	MI	MI	In WA the species is found mainly along the coast, with a few scattered inland records. On the south coast the Long-toed Stint is found from Esperance to Albany and inland to Lake Cassencarry and Dumbleyung. On the south-west coast the species is known from the Vasse River estuary, Guraga Lake and the Namming Nature Reserve. The species has occasionally been recorded in the Gascoyne Region, around Lake Wooleen, Meeberrie Station and McNeill Claypan. It is widespread around the Pilbara region and the Kimberley Division between Karratha and Wyndham-Kununurra (DEE 2019b). It occurs in a variety of terrestrial wetlands. They prefer shallow freshwater or brackish wetlands including lakes, swamps, river floodplains, streams, lagoons and sewage ponds.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Calidris tenuirostris	Great Knot	VU, MI	VU, MI	The Great Knot has been recorded around the entirety of the Australian coast, with a few scattered records inland. It is now absent from some sites along the south coast where it used to be a regular visitor (Garnett and Crowley 2000). The greatest numbers are found in northern Australia; where the species is common on the coasts of the Pilbara and Kimberley, from the Dampier Archipelago to the Northern Territory border, and in the Northern Territory from Darwin and Melville Island, through Arnhem Land to the south-east Gulf of Carpentaria. In Australasia, the species typically prefers sheltered coastal habitats, with large intertidal mudflats or sandflats. This includes inlets, bays, harbors, estuaries, and lagoons (DEE 2019b).	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with DBCA records within 5km of current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Charadrius bicinctus	Double-banded Plover	MI	MI	The Double-banded Plover breeds only in New Zealand, where it is widespread. In the non-breeding season, part of the population remains in New Zealand, while the remainder migrates to Australia. The Double-banded Plover is found on littoral, estuarine and fresh or saline terrestrial wetlands and also saltmarsh, grasslands and pasture. It occurs on muddy, sandy, shingled or sometimes rocky beaches, bays and inlets, harbours and margins of fresh or saline terrestrial wetlands such as lakes, lagoons and swamps, shallow estuaries and rivers. The species is sometimes associated with coastal lagoons, inland salt lakes and saltworks. It is also found on seagrass beds, which, when exposed at low tide, remain heavily saturated or have numerous water-filled depressions (DEE 2018).	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and no records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and no records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and no records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	PMST

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Charadrius cucullatus	Hooded Plover	P4		The hooded plover is a small Australian beach nesting bird. It mainly occurs on wide beaches backed by dunes with large amounts of seaweed and jetsam, creek mouths and inlet entrances. Nests are found above the high water mark on flat beaches, on stony terraces, or on sparsely vegetated dunes. As the hooded plover occurs on beaches, it is easily disturbed by human activities, particularly off-leash domestic dogs.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and only four records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and only four records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and only four records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	Naturemap, DBCA
Charadrius dubius	Little Ringed Plover	MI	MI	While the majority of the population of Little Ringed Plovers will spend the northern winters in Africa, southward of the Sahara desert, a small number will migrate to northern Australia. In Australia they are occasionally found along the coastline, mostly of the northern part of the continent. Outside the breeding season Little Ringed Plovers have a preference for beaches with sand dunes and marshes. They are also regularly found in sewage treatment plants (DECCEW, 2022).	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and only one record confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and only one record confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and only one record confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Charadrius mongolus	Lesser Sand Plover	EN, MI	EN, MI	Within Australia, the Lesser Sand-Plover is widespread in coastal regions and has been recorded in all states. It mainly occurs in northern and eastern Australia, in southeastern parts of the Gulf of Carpentaria, western Cape York Peninsula and islands in Torres Strait, and along the entire east coast, though it occasionally also occurs inland. It is most numerous in Queensland and NSW. The species has also been recorded on Lord Howe Island, Norfolk Island and Christmas Island, Indian Ocean. In non-breeding grounds in Australia, this species usually occurs in coastal littoral and estuarine environments. It inhabits large intertidal sandflats or mudflats in sheltered bays, harbors and estuaries, and occasionally sandy ocean beaches, coral reefs, wave-cut rock platforms and rocky outcrops. It also sometime occurs in short saltmarsh or among mangroves. The species also inhabits saltworks and near-coastal saltpans, brackish swamps and sandy or silt islands in riverbeds (Marchant & Higgins 1993). In north-western Australia, the species appears to use the Port Hedland saltworks in preference to nearby beaches (DCCEW, 2022).	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and no records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and no records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and no records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	PMST
Charadrius leschenaultii	Greater Sand Plover	VU, MI	VU, MI	In Australia, the Greater Sand Plover occurs in coastal areas in all states, though the greatest numbers occur in northern Australia, especially the north-west (Marchant & Higgins 1993). In northern Australia, the species is especially widespread between North West Cape and Roebuck Bay in WA; there are sparsely scattered records from the largely inaccessible area between Roebuck Bay and Darwin, but it often occurs in the Top End of the Northern Territory, including on Groote Eylandt (DCCEEW 2022).	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and only two records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and only two records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Highly Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline for consistent feeding and foraging, and only two records confirmed within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Chlidonias leucopterus	White-Winged Black Tern	MI	MI	White-winged Black Terns are non-breeding migrants to Australia from the North. They arrive anywhere along the tropical coast of Australia and disperse around basically the entire Australian seaboard, including the East coast of Tasmania and many small offshore islands. They can be found farther inland, in parts of the Great Dividing Range and in particular in the central part of the Murray-Darling Basin near the NSW/VIC border. There are also White-winged Black Terns in an area around Perth, WA. Elsewhere on the continent White-winged Black Terns are found only rarely, and never in the great deserts of WA/SA/NT or the Nullarbor. White-winged Black Terns live around lakes including ephemeral lakes, in estuaries and in coastal waters (DCCEEW 2022).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km the Survey Areas in the last century.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km the Survey Areas in the last century.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km the Survey Areas in the last century.	DBCA

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Diomedea amsterdamensis	Amsteram Albatross	EN, MI	EN, MI	The Amsterdam Albatross is a huge, full-bodied albatross with extremely long wings (wing span 2.5–3.5 m) and a short, wedge-shaped tail. The bill is very large and pink, with a bulbous tip (Marchant & Higgins 1990). The subspecies is similar in appearance to the Wandering Albatross with uniform dark brown plumage, and a contrasting clown-like white mask extending from the top of the bill, behind the eyes, around the cheeks and under the chin, and white underwings (Pizzey & Knight 1999). The Amsterdam Albatross is a marine, pelagic seabird. It nests in open patchy vegetation (among tussocks, ferns or shrubs) near exposed ridges or hillocks (Weimerskirch et al. 1985). It sleeps and rests on ocean waters when not breeding (Marchant & Higgins 1990). The Amsterdam Albatross is a non-resident visitor to Australia, and may occur in south-west and south Australian waters (Pizzey & Knight 1999). The similarity of the Amsterdam Albatross to juvenile Wandering Albatross makes identification at sea difficult, and may obscure distribution information of this subspecies. There are a few records of this subspecies off New Zealand, and one bird was captured on a longline fishing vessel operating south of Tasmania (Gales 1998).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Diomedea exulans	Wandering Albatross	VU, MI	VU, MI	The Wandering Albatross has the longest wing-span of any ocean bird, spanning 2.5 - 3.5 m. In flight, the Wandering Albatross may appear somewhat humpbacked, and with pink toes visible. Adults have a white or pale back, extending along the dorsal surface of the wings near the body, and white underwings. Except in fully mature old males, the white tail will have black edges. Up close, the bill is large, shapely, and pale-flesh coloured; and the white plumage of the head and body have very fine grey barring (Pizzey & Knight 1999). The Wandering Albatross is solitary or gregarious at sea. It breeds in colonies (Marchant & Higgins 1990). On breeding islands, the Wandering Albatross nests on coastal or inland ridges, slopes, plateaux and plains, often on marshy ground (Falla 1937; Warham & Bell 1979). Nests of the Wandering Albatross are sited on moss terraces, in dense tussocks, and often in loose aggregations on the west (windward) side of islands. It prefers open or patchy vegetation (tussocks, ferns or shrubs), and it requires nesting areas that are near exposed ridges or hillocks so that it can take off (Warham & Bell 1979). The Wandering Albatross breeds on Macquarie Island (Environment Australia 1999; Marchant & Higgins 1990). A single breeding pair has also been recorded on Heard Island (Woehler 1991). It feeds in Australian portions of the Southern Ocean (Nicholls et al. 1995, 1997).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Diomedea epomophora	Southern Royal Albatross	VU, MI	VU, MI	Originally considered a polytypic species, the Royal Albatross was split into *D. epomophora* (Southern Royal Albatross) and *D. sanfordi* (Northern Royal Albatross) in 1998 by Robertson and Nunn based on several key morphological differences between the two taxa. The Southern Royal Albatross is a New Zealand endemic breeder, breeding only on Campbell Island (99% of the population) and in the Auckland Islands. However, migratory and foraging individuals have been sighted across both coasts of Southern Australia due to the species' wide-ranging feeding behaviour over wide open seas (DCCEEW 2022)..	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Diomedea sanfordi	Northern Royal Albatross	EN, MI	EN, MI	Adult Northern Royal Albatross have a white head, neck, body and tail, sharply contrasting against the black wings. The underwing is white except for a dark trailing edge and a large dark tip. Juvenile Northern Royal Albatrosses have indistinct brown mottling on the crown, and pronounced black mottling on the lower back and rump, and a narrow black terminal band on the tail. The bill is large, with a bulbous tip, pinkish coloured horn and a diagnostic black cutting edge on the upper mandible. In breeding birds, the bill may flush to a brighter pink. The iris is brown, and the feet and legs are pinkish to blueish-white, with blueish webs (Marchant & Higgins 1990). The Northern Royal Albatross is marine, pelagic and aerial. Its habitat includes subantarctic, subtropical, and occasionally Antarctic waters (Marchant & Higgins 1990). It occurs where the surface temperature of the water is between 6–20 °C (Barton 1977, 1980; Jehl 1973; Szijj 1967). The Northern Royal Albatross ranges widely over the Southern Ocean, with individuals seen in Australian waters off south-eastern Australia (Environment Australia 2001f).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Gallinago megala	Swinhoe's Snipe	MI	MI	During the non-breeding season Swinhoe's Snipe occurs at the edges of wetlands, such as wet paddy fields, swamps, and freshwater streams. The species is also known to occur in grasslands, drier cultivated areas (including crops of rapeseed and wheat) and market gardens (Higgins & Davies 1996). Habitat specific to Australia includes the dense clumps of grass and rushes round the edges of fresh and brackish wetlands. This includes swamps, billabongs, river pools, small streams and sewage ponds. They are also found in drying claypans and inundated plains pitted with crab holes (Higgins & Davies 1996).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Gallinago stenura	Pin-tail Snipe	MI	MI	In WA the species was reported at Pilbara, Port Headland, Myaree Pool, Maitland River and near Karratha. During non-breeding period the Pin-tailed Snipe occurs most often in or at the edges of shallow freshwater swamps, ponds and lakes with emergent, sparse to dense cover of grass/sedge or other vegetation (DEE 2019b).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Numenius minutus	Little Curlew	MI	MI	Little Curlews generally spend the non-breeding season in northern Australia from Port Hedland in WA to the Queensland coast (Minton 2002 pers. comm.). There are records of the species from inland Australia, and widespread but scattered records on the east coast. The Little Curlew is most often found feeding in short, dry grassland and sedgeland, including dry floodplains and blacksoil plains, which have scattered, shallow freshwater pools or areas seasonally inundated. Open woodlands with a grassy or burnt understory, dry saltmarshes, coastal swamps, mudflats or sandflats of estuaries or beaches on sheltered coasts, mown lawns, gardens, recreational areas, ovals, racecourses and verges of roads and airstrips are also used (Higgins & Davies 1996).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Numenius madagascariensis	Eastern Curlew	CR, MI	CR, MI	The Eastern Curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. The birds are often recorded among saltmarsh and on mudflats fringed by mangroves, sometimes within the mangroves, and in coastal saltworks and sewage farms. In the South-West, Eastern Curlews are recorded from Eyre, and there are scattered records from Stokes Inlet to Peel Inlet (Marchant & Higgins 1993). They are uncommon further south of Geraldton, but can be spotted in Alfred Cove, Peel Inlet and the Albany region (Nevill 2013).	**Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline, and only four confirmed DBCA records have been made within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline, and only four confirmed DBCA records have been made within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. The Survey Areas lacks suitable shallow extensive shoreline, and only four confirmed DBCA records have been made within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Numenius phaeopus	Whimbrel	MI	MI	The Whimbrel is often found on the intertidal mudflats of sheltered coasts. It is also found in harbours, lagoons, estuaries and river deltas, often those with mangroves, but also open, un-vegetated mudflats. It is occasionally found on sandy or rocky beaches, on coral or rocky islets, or on intertidal reefs and platforms. It has been infrequently recorded using saline or brackish lakes near coastal areas. It also used salt flats with saltmarsh, or saline grasslands with standing water left after high spring-tides, and in similar habitats in sewage farms and salt fields (Higgins & Davies 1996). There are a small number of inland records from saline lakes and cane grass swamps. It has also been recorded in coastal dunes and a football field.	**Unlikely**. The Survey Areas lacks suitable mudflats and feeding habitat, and only four confirmed DBCA records have been made within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. The Survey Areas lacks suitable mudflats and feeding habitat, and only four confirmed DBCA records have been made within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. The Survey Areas lacks suitable mudflats and feeding habitat, and only four confirmed DBCA records have been made within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence..	PMST, DBCA
Limosa lapponica menzbieri	Northern Siberian Bar-tailed Godwit	EN & MI	EN & MI	The Bar-tailed godwit occurs mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It has also been recorded in coastal sewage farms and saltworks, saltlakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats. It is widespread around the coast, from Eyre to Derby (TSSC 2016b). They are uncommon in the south west, but can be sighted from Geraldton to Bunbury, at Alfred Cove, and then at a few estuaries on the south coast including Kalgan River Mouth and Oyster Harbour (Nevill 2013).	**Unlikely**. The Survey Areas lacks suitable mudflats and feeding habitat, although numerous DCBA recordings have been made historically at neighbouring sites.	**Unlikely**. The Survey Areas lacks suitable mudflats and feeding habitat, although numerous DCBA recordings have been made historically at neighbouring sites.	**Unlikely**. The Survey Areas lacks suitable mudflats and feeding habitat, although numerous DCBA recordings have been made historically at neighbouring sites.	PMST, DBCA
Limosa limosa	Black-tailed Godwit	EN & MI	EN & MI	Black-tailed Godwits arrive in Australia each year in August from breeding grounds in the northern hemisphere. Birds are more numerous in northern Australia. Black-tailed Godwits inhabit estuarine mudflats, beaches and mangroves. They are common in coastal areas around Australia. They are social birds and are often seen in large flocks and in the company of other waders (Birdlife Australia 2019).	**Unlikely**. The Survey Areas lacks suitable mudflats and feeding habitat, and only five confirmed DBCA records have been made within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. The Survey Areas lacks suitable mudflats and feeding habitat, and only five confirmed DBCA records have been made within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. The Survey Areas lacks suitable mudflats and feeding habitat, and only five confirmed DBCA records have been made within 10km of the Survey Areas. Any visitation would be infrequent vagrant occurrence..	PMST, DBCA
Macronectes halli	Northern Giant Petrel	VU, MI	VU, MI	The range of the Northern Giant-Petrel is circumpolar, encompassing all southern oceans and coastal waters around the southern continents. Northern Giant-Petrels reach the Australian coastline anywhere up to a few hundred km South of the tropic of Capricorn on both the East coast and the West coast. Northern Giant-Petrels breed on numerous offshore islands.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Macronectes giganteus	Southern Giant Petrel	EN & MI	EN & MI	The Southern Giant Petrel is the largest petrel, and has been described as looking like a small, ungainly brown albatross with a massive greenish-tipped straw coloured bill, surmounted by a large single nostril-tube (Pizzey & Knight 1999). Mature adults are grey-brown with a faded and mottled-white head, neck and breast. The underwing has a pale leading edge, near the body, which should aid in discrimination from the Northern Giant Petrel, in which this area is dark brown (Pizzey & Knight 1999). The Southern Giant-Petrel is marine bird that occurs in Antarctic to subtropical waters. In summer, it mainly occurs over Antarctic waters, and it is widespread south as far as the pack-ice and onto the Antarctic continent (Marchant & Higgins 1990). The Southern Giant-Petrel breeds on the Antarctic Continent, Peninsula and islands, and on subantarctic islands and South America. The large nests are normally built in exposed areas of open vegetation (Voisin 1988) or, in Antarctic colonies, of no vegetation (E.J. Woehler, AAD 2002, pers. comm.). In the southern Antarctic zone, it nests in exposed snow- and ice-free coastal areas, open gravel areas rocky bluffs, outcrops, ridges, slopes, mounds, raised beaches, open flats, edges of plateaux or offshore rocks from five to 120 m above sea level. Colonies often nest near a steep drop or on slope. The Southern Giant-Petrel breeds on six subantarctic and Antarctic islands in Australian territory; Macquarie Island, Heard Island and McDonald Island in the Southern Ocean, and Giganteus Island, Hawker Island, and Frazier Island in the Australian Antarctic Territories (EABG 2001, Woehler et al. 2001; Woehler et al. in press).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST, DBCA
Oxyura australis	Blue billed Duck	P4		The blue-billed duck is a small Australian almost entirely aquatic duck, with both the male and female growing to a length of 40 cm. The male has a slate-blue bill which changes to bright blue during the breeding season (Morcombe 2004). The blue-billed duck is endemic to Australia's temperate regions, ranging from the southwest of Western Australia, extending to southern Queensland, through New South Wales and Victoria, to Tasmania. The species is readily seen on freshwater lakes and billabongs where deep fresh water is present (Morcombe 2004).	**Possible.** Numerous records DBCA records and known to occur locally, although lack of core, lake and freshwater habitat suggests that occurrence would be temporary as fly-over or brief foraging behaviour.	**Possible.** Numerous records DBCA records and known to occur locally, although lack of core, lake and freshwater habitat suggests that occurrence would be temporary as fly-over or brief foraging behaviour.	**Possible.** Numerous records DBCA records and known to occur locally, although lack of core, lake and freshwater habitat suggests that occurrence would be temporary as fly-over or brief foraging behaviour.	DBCA
Pandion haliaetus	Osprey	MI	MI	Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia. They require extensive areas of open fresh, brackish or saline water for foraging (Marchant & Higgins 1993). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes. They exhibit a preference for coastal cliffs and elevated islands in some parts of their range, but may also occur on low sandy, muddy or rocky shores and over coral cays.	**Likely.** Numerous records DBCA records and known to occur locally, and coastal, open brackish and saline waters mean that that occurrence is likely, although mostly temporary as fly-over or brief foraging behaviour.	**Likely.** Numerous records DBCA records and known to occur locally, and coastal, open brackish and saline waters mean that that occurrence is likely, although mostly temporary as fly-over or brief foraging behaviour.	**Likely.** Numerous records DBCA records and known to occur locally, and coastal, open brackish and saline waters mean that that occurrence is likely, although mostly temporary as fly-over or brief foraging behaviour.	PMST
Phaethon rubricauda westralis	Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird	EN & M	EN & MI	In Australia, it nests on Queensland's coral islands (including Raine Island and Lady Elliot Island), and Ashmore Reef and Rottnest Island off Western Australia, as well as Sugarloaf Rock at Cape Naturaliste and Busselton on the Western Australian coastline itself, and the offshore territories of the Cocos (Keeling) Islands, Norfolk and Lord Howe islands. In New Zealand territory it breeds on the Kermadec Islands. It frequents areas of ocean with water temperatures from 24 to 30 °C (75 to 86 °F) and salinity under 35% in the southern hemisphere and 33.5% in the northern hemisphere. In the Pacific Ocean, the southern boundary of its range runs along the 22 °C (72 °F) summer surface isotherm The warm waters of the Leeuwin Current facilitate the species nesting at Cape Leeuwin in southwestern Australia, yet is only a rare visitor to New South Wales at corresponding latitudes on the Australian east coast (Higgens et al 1990).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Phalaropus lobatus	Red-necked Pharalope	MI	MI	During non-breeding period the Red-necked Phalarope occurs mainly at sea. In Australia it is recorded at both inland and coastal lakes/swamps, including highly saline waters and artificial wetlands, notably saltfields (Higgins & Davies 1996).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST

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		State	Federal					
Plegadis falcinellus	Glossy Ibis	MI	MI	Within Australia, the Glossy Ibis is generally located east of the Kimberley. The species is also known to be patchily distributed in the rest of Western Australia. Its preferred habitat for foraging and breeding are freshwater marshes at the edges of lakes and rivers, lagoons, floodplains, wet meadows, swamps, reservoirs, sewerage ponds, rice-fields and cultivated areas under irrigation (DSEWPaC 2013).	**Unlikely.** While numerous DBCA records have been made within 5km of the Survey Areas, suitable freshwater lakes and river habitat is not present for regular feeding and foraging.	**Unlikely.** While numerous DBCA records have been made within 5km of the Survey Areas, suitable freshwater lakes and river habitat is not present for regular feeding and foraging.	**Unlikely.** While numerous DBCA records have been made within 5km of the Survey Areas, suitable freshwater lakes and river habitat is not present for regular feeding and foraging.	DBCA
Pterodroma mollis	Soft Plumaged Petrel	VU	VU	The Soft-plumaged Petrel is generally found over temperate and subantarctic waters in the South Atlantic, southern Indian and western South Pacific Oceans. The species is a regular and quite common visitor to southern Australian seas but is more common in the west than in the south and south-east (Marchant & Higgins 1990). In the southern Indian Ocean, the species is most numerous between 30° and 50°S from the South African to the west Australian coasts. The species is possibly common in seas south-west of Australia.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Rostratula australis	Australian Painted Snipe	En	En	The Australian Painted Snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. Australian Painted Snipe breeding habitat requirements may be quite specific: shallow wetlands with areas of bare wet mud and both upper and canopy cover nearby. The species rarely occurs in south-western Australia, where it was once more common (Marchant & Higgins 1993; Garnett and Crowley 2000).	**Unlikely.** Habitat not considered suitable for regular feeding and foraging. Any occurrence would be as infrequent visitor.	**Unlikely.** Habitat not considered suitable for regular feeding and foraging. Any occurrence would be as infrequent visitor.	**Unlikely.** Habitat not considered suitable for regular feeding and foraging. Any occurrence would be as infrequent visitor.	PMST, DBCA
Tringa brevipes	Grey-tailed Tattler	MI	MI	Within Australia, the Grey-tailed Tattler has a primarily northern coastal distribution and is found in most coastal regions. It is found in the south-west between Augusta and Cervantes (DAWE 2021d).	**Unlikely.** Habitat not considered suitable for regular feeding and foraging. Any occurrence would be as infrequent visitor.	**Unlikely.** Habitat not considered suitable for regular feeding and foraging. Any occurrence would be as infrequent visitor.	**Unlikely.** Habitat not considered suitable for regular feeding and foraging. Any occurrence would be as infrequent visitor.	PMST, DBCA
Tringa glareola	Wood Sandpiper	MI	MI	The Wood Sandpiper uses well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes. They are typically associated with emergent, aquatic plants or grass, and dominated by taller fringing vegetation, such as dense stands of rushes or reeds, shrubs, or dead or live trees, especially Melaleuca and River Red Gums E. camaldulensis. They also frequent inundated grasslands, short herbage or wooded floodplains, where floodwaters are temporary or receding. They can occasionally be found at drying or stony small wetlands, but rarely use brackish wetlands, or dry stunted saltmarsh. They can also use artificial wetlands, including open sewage ponds, reservoirs, large farm dams, and bore drains (DotE 2016). In WA, they can be found in many of Perth's wetlands including drainage channels, in Wheatbelt inland ephemeral lakes if they are not too saline, but are uncommon on the south coast (Nevill 2013).	**Unlikely**. Known to occur locally with recent DBCA records within 5km of the Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline habitat. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally with recent DBCA records within 5km of the Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline habitat. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally with recent DBCA records within 5km of the Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline habitat. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Tringa totanus	Common Redshank	MI	MI	In Australia, the Common Redshank has been recorded at scattered locations. In WA the species is vagrant to the south-west with records at Peel Inlet, Coodanup, the Gascoyne region, Coral Bay and Carnarvon (Higgins & Davis 1996). It is regular and widespread in the northwest, from the Dampier Salt fields to Roebuck Bay and Broome. The Common Redshank is found at sheltered coastal wetlands such as bays, river estuaries, lagoons, inlets and saltmarsh (with bare open flats and banks of mud or sand). They are also found around salt lakes, freshwater lagoons, artificial wetlands and saltworks and sewage farms (Higgins & Davies 1996).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Tringa nebularia	Common Greenshank	MI	Mi	The Common Greenshank does not breed in Australia; however, the species occurs in all types of wetlands and has the widest distribution of any shorebird in Australia (DSEWPaC 2013).	**Unlikely**. Known to occur locally with recent DBCA records within 5km of the Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline habitat. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally with recent DBCA records within 5km of the Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline habitat. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally with recent DBCA records within 5km of the Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline habitat. Any visitation would be infrequent vagrant occurrence.	DBCA

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		State	Federal					
Tringa stagnatilis	Marsh Sandpiper	MI	MI	The Marsh Sandpiper lives in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks. They are recorded less often at reservoirs, waterholes, soaks, bore-drain swamps and flooded inland lakes. In north Australia they prefer intertidal mudflats (Higgins & Davies 1996), although surveys in Kakadu National Park recorded more birds around shallow freshwater lakes than in areas influenced by tide. At the Top End they often use ephemeral pools on inundated freshwater and tidal floodplains (Higgins & Davies 1996). They are found infrequently around mangroves (Higgins & Davies 1996).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Dasyornis longirostris	Western bristlebird	EN	EN	The Western Bristlebird is restricted to low dense coastal heathland reaching up to 1.5m in height. Vegetation species typically include Baxter's Banksia *(Banksia baxteri)*, Dryandra-leaved Banksia (*B. dryandroides)*, Candlestick Banksia (*B. attenuata)* or Scarlet Banksia (*B. coccinea*)), paperbarks (such as *Melaleuca striata* or *M. thymoides*), hakeas (such as Hood Leaved Hakea (*Hakea cucullata*), or Two-leaf Hakea (*H. trifurcata*)), *Lambertia* spp., *Dryandra* spp., *Adenanthos* spp., *Leptospermum* spp., *Daviesia reversifolia* and Dwarf Sheoak *(Allocasuarina humilis). (DCCEEW)*	**Highly unlikely.** Locally and regionally extinct. Survey Areas is beyond the current known range and lack of suitable habitat.	**Highly unlikely.** Locally and regionally extinct. Survey Areas is beyond the current known range and lack of suitable habitat.	**Highly unlikely.** Locally and regionally extinct. Survey Areas is beyond the current known range and lack of suitable habitat.	DBCA
Hydroprogne caspia	Caspian tern	MI	MI	The Caspian Tern is mostly associated with sheltered coasts such as harbours, bays, estuaries, etc. They can also be found in inland terrestrial wetlands (saline or fresh) or man-made bodies of water (lakes or reservoirs). (DCCEEW).	**Possible.** Known to occur locally with 10 DBCA records within 10km of the Survey Areas. The open water aspects of the Survey Areas provide the potential to occur on an occasional basis for feeding and foraging.	**Possible.** Known to occur locally with 10 DBCA records within 10km of the Survey Areas. The open water aspects of the Survey Areas provide the potential to occur on an occasional basis for feeding and foraging.	**Possible.** Known to occur locally with 10 DBCA records within 10km of the Survey Areas. The open water aspects of the Survey Areas provide the potential to occur on an occasional basis for feeding and foraging.	PMST, DBCA
Onychoprion anaethetus	Bridled Tern	MI	MI	The species forages in offshore, continental shelf waters and is only rarely recorded along mainland coasts, even those adjacent or close to breeding colonies (though note breeding on mainland in Western Australia just mentioned). At least, the southern populations migrate north after breeding. The species is a vagrant to southern and south-eastern Australian waters outside the breeding range (Barrett et al. 2003; Blakers et al. 1984; Bonnin 1968, 1969, 1982; Higgins & Davies 1996; Hulsman & Langham 1985; Johnstone & Storr 1998). In Western Australia, breeding is widespread from islands off Cape Leeuwin (extending round the southern coast to Seal Rocks) north to Shark Bay and in Pilbara region and Kimberley Division. At sea, distribution extends from Cape Leeuwin north to Dirk Hartog Island, with isolated mainland coastal records at Point Maud and Ningaloo, and from Barrow Island to the Dampier Archipelago, and at sea off the Kimberley coast from waters west of the Dampier Peninsula to Ashmore Reef and Joseph Bonaparte Gulf (Barrett et al. 2003; Blakers et al. 1984; Higgins & Davies 1996; Johnstone & Storr 1998). In the Northern Territory, most breeding colonies are in the eastern portion of the territory, with main colonies being off north-eastern Arnhem Land, and on south-eastern Groote Eylandt and the Sir Edward Pellew Group.	**Unlikely**. Known to occur locally in neighbouring areas. However, the Survey Areas lacks suitable shallow extensive shoreline and coastal habitat. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally in neighbouring areas. However, the Survey Areas lacks suitable shallow extensive shoreline and coastal habitat. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally in neighbouring areas. However, the Survey Areas lacks suitable shallow extensive shoreline and coastal habitat. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Pachyptila turtur subantarctica	Fairy Prion (Southern)	VU	VU	The fairy prion (southern) breeds on Macquarie Island and a number of other subantarctic islands outside of Australia. There are 80 to 250 breeding pairs in Australia and a global population of 80 000. In Australia, breeding is recorded on two rock stacks off Macquarie Island and on the nearby Bishop and Clerk Island. he subspecies digs burrows among rocks or low vegetation in which to nest. Burrows may be dug below mat forming herbs. The species feeds by plucking food from the ocean surface. Some individuals may migrate towards New Zealand and southern Australia in winter.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Phoebetria fusca	Sooty albatross	Mi	Mi	The Sooty Albatross is a Marine and pelagic species, tolerating a wide range of salinities and se surface temperatures. The species typically occurs 35ºS in subtropical and subantarctic waters but is in greatest abundance near the Subtropical Convergence. (DCCEEW)	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST, DBCA

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Platycercus icterotis xanthogenys	Western Rosella	P4		Western Rosellas are found in open eucalypt forests and timbered areas, including cultivated land and orchards.	**Unlikely.** Suitable habitat does not occur within Survey Areas and only one confirmed record has been made within 10km of the current Survey Areas.	**Unlikely.** Suitable habitat does not occur within Survey Areas and only one confirmed record has been made within 10km of the current Survey Areas.	**Unlikely.** Suitable habitat does not occur within Survey Areas and only one confirmed record has been made within 10km of the current Survey Areas.	DBCA
Pluvialis fulva	Pacific Golden Plover	MI	MI	The Pacific Golden Plover breeds on the Arctic tundra in western Alaska. It winters in South America and islands of the Pacific Ocean to India, Indonesia and Australia. In Australia it is widespread along the coastline. Pacific Golden Plovers usually occur on beaches, mudflats and sandflats (sometimes in vegetation such as mangroves, low saltmarsh such as Sarcocornia, or beds of seagrass) in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in saltworks. The species is also sometimes recorded on islands, sand and coral cays and exposed reefs and rocks (DEE 2019b).	**Unlikely.** Suitable mudflats, salt-flats and sheltered coastal habitat is not present, and less than 10 DBCA records have been made within 10km of the Survey Areas.	**Unlikely.** Suitable mudflats, salt-flats and sheltered coastal habitat is not present, and less than 10 DBCA records have been made within 10km of the Survey Areas.	**Unlikely.** Suitable mudflats, salt-flats and sheltered coastal habitat is not present, and less than 10 DBCA records have been made within 10km of the Survey Areas.	PMST, DBCA
Pluvialis squatarola	Grey plover	MI	MI	The Grey Plover inhabits entirely coastal areas where they typically reside in sheltered areas such as estuaries and lagoons with mudflats and sandflats. (DCCEEW)	**Unlikely**. Known to occur locally, with numerous DBCA records within a 5km radius of the current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with numerous DBCA records within a 5km radius of the current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	**Unlikely**. Known to occur locally, with numerous DBCA records within a 5km radius of the current Survey Areas. However, the Survey Areas lacks suitable shallow extensive shoreline. Any visitation would be infrequent vagrant occurrence.	PMST, DBCA
Sterna dougallii	Roseate Tern	MI	MI	The Roseate Tern occurs in coastal and marine areas in subtropical and tropical seas. The species inhabits rocky and sandy beaches, coral reefs, sand cays and offshore islands. Birds rarely occur in inshore waters or near the mainland, usually venturing into these areas only accidentally, when nesting islands are nearby (Higgins & Davies 1996).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Sternula albifrons	Little Tern	MI	MI	In Australia, Little Terns inhabit sheltered coastal environments, including lagoons, estuaries, river mouths and deltas, lakes, bays, harbours and inlets, especially those with exposed sandbanks or sand-spits, and also on exposed ocean beaches (DCCEEW 2022).	**Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Sternula nereis nereis	Australian Fairy Tern	VU	VU	The Fairy Tern is approximately 22–27 cm in length, 70 g in weight and has a wingspan of 44–53 cm (Higgins & Davies 1996). The Fairy Tern is bulky and round bodied (Simpson & Day 2004). The breeding plumage of both sexes is pale grey-white, with a black crown, nape, ear coverts and patch in front of the eyes (square to round in shape). The forehead is white and the bill is orange-yellow (Higgins & Davies 1996). Legs are dull yellow and the iris is dark brown (Lindsey 1986a). The species is gregarious and often found in flocks of 50–150 birds. However the bird is also seen singularly or in pairs (Higgins & Davies 1996). The Fairy Tern (Australian) nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. The subspecies has been found in embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline (Higgins & Davies 1996; Lindsey 1986a). The bird roosts on beaches at night (Higgins & Davies 1996). Within Australia, the Fairy Tern occurs along the coasts of Victoria, Tasmania, South Australia and Western Australia; occurring as far north as the Dampier Archipelago near Karratha.	**Unlikely**. The Survey Areas lacks consistent, suitable habitat for feeding and nesting only 6 confirmed DBCA records have been made within 10km of the Survey Areas.	**Unlikely**. The Survey Areas lacks consistent, suitable habitat for feeding and nesting only 6 confirmed DBCA records have been made within 10km of the Survey Areas.	**Unlikely**. The Survey Areas lacks consistent, suitable habitat for feeding and nesting only 6 confirmed DBCA records have been made within 10km of the Survey Areas.	PMST, DBCA

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Thalassarche carteri	Indian Yellow-Nosed Albatross	VU, MI	VU, MI	*Thalassarche carteri* breeds on Amsterdam, Crozet Islands, Kerguelen Islands, and St Paul Islands (French Southern Territories) and on Prince Edward Island (South Africa). Breeding It breeds on slopes or cliffs, typically in bare, rocky areas but sometimes in tussock-grass and ferns (Brooke 2004). Foraging range Satellite-tracking of birds from Amsterdam Island has shown that breeding birds forage up to 1,500 km from the colony (Pinaud and Weimerskirch 2007). (Birdlife 2020). In Australian territory, Grey-headed Albatross breed on the southern and western flanks of Petrel Peak, Macquarie Island (Copson 1988). The Grey-headed Albatross has bred in this same restricted area on Macquarie Island for at least the past 30 years (Terauds et al. 2005).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST, DBCA
Thalassarche chrysostoma	Grey-headed Albatross	VU	VU	The Grey-headed Albatross is a medium sized albatross with a length of 70–85 cm, a wingspan of 1.8–2.05 m, males weigh 3.4–3.7 kg and females weigh 3–3.6 kg (Marchant & Higgins 1990). Adults have a distinct combination of a wholly grey head, neck and mantle, and a black bill with narrow yellow stripes along the culmen and the bottom of the lower mandible. Like the majority of albatross, the Grey-headed Albatross is marine, pelagic and migratory. Its habitat includes subantarctic, subtropical, and occasionally Antarctic waters in the Pacific, Indian, Atlantic and Southern Oceans (del Hoyo et al. 1992; Marchant & Higgins 1990). In Australian territory, Grey-headed Albatross breed on the southern and western flanks of Petrel Peak, Macquarie Island (Copson 1988). The Grey-headed Albatross has bred in this same restricted area on Macquarie Island for at least the past 30 years (Terauds et al. 2005).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	DBCA
Thalassarche impavida	Campbell Albatross	VU, MI	VU, MI	The Campbell Albatross is a medium sized albatross, with a wingspan of 210–250 cm. Like the Black-browed Albatross (*Thalassarche melanophris*), adult Campbell Albatross have a white head with a distinctive black brow, bright yellow-orange bill and broad black leading edge on the underwing. The Campbell Albatross differs from the Black-browed Albatross in having a heavier black brow (more extensive in front of the eye); a honey coloured (not dark-brown) iris; slightly broader black leading edge on underwing; and a series of bold streaks running from the elbow and extending inwards to the base of the wing, creating an isolated white patch in the centre of the wing-pit (Marchant & Higgins 1990). The Campbell Albatross is a marine sea bird inhabiting sub-Antarctic and subtropical waters from pelagic to shelf-break water habitats (Marchant & Higgins 1990). The Campbell Albatross breed on Campbell Island (Marchant & Higgins 1990). They make their nests on tussock-covered ledges and terraces of cliffs, slopes and hills, overlooking the sea or valleys, and on the summits of rocky islets (Bailey & Sorenson 1962; Downes et al. 1959; Weimerskirch et al. 1986). The Campbell Albatross is a non-breeding visitor to Australian waters. After breeding, birds move north and may enter Australia's temperate shelf waters (Marchant & Higgins 1990).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Thalassarche melanophris	Black-browed Albatross	VU, MI	VU, MI	The Black-browed Albatross is 80–95 cm in length, has a mass of 3–5 kg and a wingspan of 210–250 cm (Marchant & Higgins 1990). Adults of either gender are white with dark-brown irides; an orange-yellow bill; a black brow, back, upperwing and tail; broad black edges to the underwing; and bluish-grey legs and feet (Brooke 2004; Marchant & Higgins 1990). Juvenile and immature birds can be distinguished from the adults by the colour and pattern of the plumage and by the darker bill which has a black tip (Brooke 2004; Marchant & Higgins 1990). The Black-browed Albatross is a marine species that inhabits Antarctic, subantarctic and temperate waters and occasionally enters the tropics (Brooke 2004; Marchant & Higgins 1990; Tickell 2000; Woehler et al. 1991). It can tolerate a broad range of sea-surface temperatures from 0–24º C (Ainley et al. 1984; Bierman & Voous 1950; Brown et al. 1975; Grindley 1981; Reid et al. 2002), and it forages around the breaks of continental and island shelves and across nearby underwater banks (Prince et al. 1998; Reid et al. 2002; Terauds et al. 2006; Weimerskirch et al. 1988, 1997), but also frequents other marine habitats, such as oceanic waters (Reid et al. 2002; Terauds et al. 2006; Woehler et al. 1991) and the iceberg belt at the limit of the Antarctic pack ice (Falla 1937; Hicks 1973; Murphy 1936; Raymond & Woehler 2003; Woehler et al. 2003). The Black-browed Albatross breeds on subantarctic and peri-antarctic islands (Marchant & Higgins 1990) in colonies located on terraces of coastal cliffs, slopes of nearby hills, summits of rocky islets or on flat or gently-sloping ground. The Black-browed Albatross breeds within Australian jurisdiction on Heard Island (Kirkwood & Mitchell 1992; Woehler 2006; Woehler et al. 2002), McDonald Islands (Gales 1998; Woehler 2006; Woehler et al. 2002), Macquarie Island (Copson 1988; Gales 1998; Scott 1994c) and Bishop and Clerk Islets (Scott 1994c; Gales 1998).	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST, DBCA
Thalassarche steadi	White-capped Albatross	VU, MI	VU, MI	The White-capped Albatross has a grey back and wings; faint or absent greyish wash on cheeks; and a white head, neck and rump. The underwing is mostly white with a narrow black margin and a small dark notch at the wing-pit. The bill is pale greyish straw colour, with a yellowish tip (Pizzey & Knight 1999). There is also a thin black eyebrow and a delicate, grey wash over the face.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	**Highly Unlikely**. The Survey Areas lacks suitable habitat and, and no DBCA records have been made within 10km of the Survey Areas.	PMST
Thalasseus bergii	Crested tern	MI	MI	This species inhabits tropical and subtropical coastlines, foraging in the shallow waters of lagoons, coral reefs, estuaries, bays, harbours and inlets, along sandy, rocky, coral or muddy shores, on rocky outcrops in open sea, in mangrove swamps and also far out to sea on open water. It shows a preference for nesting on offshore islands, low-lying coral reefs, sandy or rocky coastal islets, coastal spits, lagoon mudflats, and artificial islets in saltpans and sewage works within 3 km of the coast. (BirdLife International, 2023)	**Possible**. Known to occur locally with numerous DBCA records within 5km of the Survey Areas. While suitable habitat for foraging and feeding is not present in quantity, there is the potential for occasional visitation.	**Possible**. Known to occur locally with numerous DBCA records within 5km of the Survey Areas. While suitable habitat for foraging and feeding is not present in quantity, there is the potential for occasional visitation.	**Likely.** Known to occur locally with numerous DBCA records within 5km of the Survey Areas and there is potential for occasional feeding and foraging utilisation,.	DBCA
Ixobrychus dubius	Australian little bittern	P4		The Australian Little Bittern occurs in diverse freshwater swamp habitats, mainly where tall rushes, reeds, Typha (cumbungi), shrub thickets or other dense cover is inundated by at least 30 cm of water. It can be found in vast swamps, but unlike the Australasian Bittern, it often inhabits small patches of dense wetland vegetation such as Typha along drains or in small urban lakes. (Birdlife Australia, 2023)	**Unlikely.** Suitable wetland and swamp habitat is not present and no DBCA records have been made within 10km of the Survey Areas for 50 years.	**Unlikely.** Suitable wetland and swamp habitat is not present and no DBCA records have been made within 10km of the Survey Areas for 50 years.	**Unlikely.** Suitable wetland and swamp habitat is not present and no DBCA records have been made within 10km of the Survey Areas for 50 years.	DBCA
Xenus cinereus	Terek Sandpiper	VU, MI	VU, MI	In Australia, the Terek Sandpiper has a primarily coastal distribution, with occasional records inland. It is more widespread and common in northern and eastern Australia than southern Australia (DEE 2018). The Terek Sandpiper mostly forages in the open, on soft wet intertidal mudflats or in sheltered estuaries, embayments, harbours or lagoons. The species has also been recorded on islets, mudbanks, sandbanks and spits, and near mangroves and occasionally in samphire (Halosarcia spp.). Birds are seldom near the edge of water, however, birds may wade into the water (Marchant & Higgins 1993).	**Highly Unlikely.** Suitable habitat for the species does not occur, no DBCA recordings have been made within 10km and the Survey Areas are to the very outer limits of the species known range.	**Highly Unlikely.** Suitable habitat for the species does not occur, no DBCA recordings have been made within 10km and the Survey Areas are to the very outer limits of the species known range.	**Highly Unlikely.** Suitable habitat for the species does not occur, no DBCA recordings have been made within 10km and the Survey Areas are to the very outer limits of the species known range.	PMST

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Bettongia penicillata ogilbyi	Woylie	EN	EN	Preferred habitat for the Woylie includes dense undergrowth, logs and rock-cavities and occasionally in burrows (Burbidge 2004). Scattered Woylie populations may be found throughout the Jarrah Forest in the south-west corner of WA. Extant naturally occurring populations of the species are restricted to three small wheatbelt reserves – Dryandra Woodland, Tutanning Nature Reserve and Perup Forest. All are characterised by the presence of thickets of the plant Gastrolobium (Van Dyck and Strahan 2008). The species is now restricted to forests and areas where predation has been controlled (or excluded). It rests during the day in a well-concealed nest, built over a shallow depression. The nest is most commonly built using long strands, of grasses, but other material such as strips of bark are also used (in the forest) or dried seagrass and/or triodia (in arid coastal areas) (Freegard 2007).	**Highly unlikely.** The Survey Areas is beyond the current range and lacks suitable habitat.	**Highly unlikely.** The Survey Areas is beyond the current range and lacks suitable habitat.	**Highly unlikely.** The Survey Areas is beyond the current range and lacks suitable habitat.	PMST
Dasyurus geoffroii	Chuditch	Vu	Vu	The Chuditch inhabits eucalypt forest (especially Jarrah, Eucalyptus marginata), dry woodland and mallee shrublands. In Jarrah Forest, Chuditch populations occur in both moist, densely vegetated, steeply sloping forest and drier, open, gently sloping forest. Most diurnal resting sites in sclerophyll forest consist of hollow logs or earth burrows (Van Dyke & Strahan, 2008). The species can travel large distances, has a large home range and is sparsely populated through a large portion of its range.	**Highly unlikely.** The Survey Areas is beyond the current range and lacks suitable habitat.	**Highly unlikely.** The Survey Areas is beyond the current range and lacks suitable habitat.	**Highly unlikely.** The Survey Areas is beyond the current range and lacks suitable habitat.	PMST, DBCA
Hydromys chrysogaster	Water-rat, rakali	P4		Water-rats live primarily in a wide variety of freshwater habitats, from sub-alpine streams and other inland waterways to lakes, swamps, farm dams and irrigation channels and are thought to be one of the few native species to have at least partially benefited from human encroachment (Gardner and Serena, 1995).	**Unlikely.** Despite known locally for within 5km of the Survey Areas, the Survey Areas lacks suitable habitat and wetland connectivity, and no evidence of feeding or foraging presence was present during field surveys within the Survey Areas.	**Unlikely.** Despite known locally for within 5km of the Survey Areas, the Survey Areas lacks suitable habitat and wetland connectivity, and no evidence of feeding or foraging presence was present during field surveys within the Survey Areas.	**Unlikely.** Despite known locally for within 5km of the Survey Areas, the Survey Areas lacks suitable habitat and wetland connectivity, and no evidence of feeding or foraging presence was present during field surveys within the Survey Areas.	DBCA
Isoodon obesulus fusciventer	Quenda	P4		The Quenda prefers dense scrubby, often swampy, vegetation with dense cover up to one metre high. However, it also occurs in woodlands, and may use less ideal habitat where this habitat occurs adjacent to the thicker, more desirable vegetation. The species often feeds in adjacent forest and woodland that is burnt on a regular basis and in areas of pasture and cropland lying close to dense cover (Van Dyck and Strahan, 2008).	**Unlikely** Survey Areas lacks suitable habitat and bushland connectivity without adequate cover and local urban vegetation to allow persistence and utilisation as a linkage corridor.	**Unlikely** Survey Areas lacks suitable habitat and bushland connectivity without adequate cover and local urban vegetation to allow persistence and utilisation as a linkage corridor.	**Possible.** Survey Areas lacks suitable habitat and bushland connectivity, however there is the potential for utilising the Survey Areas as an occasional foraging or linkage purpose in revegetated sections.	DBCA
Notamacropus irma	Western Brush Wallaby	P4		The Western Brush Wallaby is found primarily in open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland, and is uncommon in karri forest (DEC, 2012b; Van Dyck & Strahan, 2008).	**Highly Unlikely** The Survey Areas lacks suitable habitat and the Survey Areas is outside of the current typical species range, with previous records now quite old.	**Highly Unlikely.** The Survey Areas lacks suitable habitat and the Survey Areas is outside of the current typical species range, with previous records now quite old.	**Highly Unlikely.** The Survey Areas lacks suitable habitat and the Survey Areas is outside of the current typical species range, with previous records now quite old.	DBCA
Phascogale tapoatafa wambenger	south-western brush-tailed phascogale, wambenger	CD		The southwest Western Australia Brush-tailed Phascogale have been observed in dry sclerophyll forests and open woodlands that contain hollow-bearing trees. Records are less common in high rainfall areas. (DPAW, 2012)	**Highly Unlikely** The Survey Areas lacks suitable habitat and the Survey Areas is outside of the current typical species range, with previous records now quite old.	**Highly Unlikely.** The Survey Areas lacks suitable habitat and the Survey Areas is outside of the current typical species range, with previous records now quite old.	**Highly Unlikely.** The Survey Areas lacks suitable habitat and the Survey Areas is outside of the current typical species range, with previous records now quite old.	DBCA
Pseudocheirus occidentalis	Western Ringtail Possum	CR	CR	The Western Ringtail Possum occurs in and near coastal Peppermint Tree (*Agonis flexuosa*) forest and Tuart (*Eucalyptus gomphocephala*) dominated forest with a Peppermint Tree understorey from Bunbury to Albany. Also occurs in Jarrah (*Eucalyptus marginata*) forest and Jarrah-Marri (*Corymbia calophylla*) forest associated with Peppermint Tree (Van Dyck & Strahan 2008).	**Highly Unlikely** The Survey Areas lacks suitable habitat and the Survey Areas is outside of the current typical species range, with previous records now quite old.	**Highly Unlikely.** The Survey Areas lacks suitable habitat and the Survey Areas is outside of the current typical species range, with previous records now quite old.	**Highly Unlikely.** The Survey Areas lacks suitable habitat and the Survey Areas is outside of the current typical species range, with previous records now quite old.	PMST, DBCA

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Ctenotus ora	Coastal Plains skink	P3		The coastal plains skink (*Ctenotus ora*) is a species of lined or striped Ctenotus skinks**,** found on the Swan Coastal Plain south of Perth, Western Australia growing to around 6 centimetres in length from snout to vent (Wilson & Swan, 2012). It is dark in colour, with a continuous white dorsolateral stripe. The species has only been found in low numbers in a small stretch of sand dunes on the Swan Coastal Plain south of Perth, Western Australia**,** between Dunsborough and Mandurah (ALA, 2024).	**Unlikely** The Survey Areas lacks suitable habitat in terms of sandy coastal habitat with dunes and well vegetated woodlands and sandplains, and previous DBCA records are quite old.	**Unlikely** The Survey Areas lacks suitable habitat in terms of sandy coastal habitat with dunes and well vegetated woodlands and sandplains, and previous DBCA records are quite old.	**Unlikely** The Survey Areas lacks suitable habitat in terms of sandy coastal habitat with dunes and well vegetated woodlands and sandplains, and previous DBCA records are quite old.	DBCA
Lerista lineata	Perth Slider	P3		A slender species of skink endemic to Western Australia with two digits on forelimbs, three on hindlimbs, fused eyelids and broad, black lateral stripe. This species has a strong habitat preference for sandy, coastal heath and shrubland, particularly between Perth and Mandurah (Wilson & Swan, 2013).	**Unlikely** The Survey Areas lacks suitable habitat in terms of sandy coastal habitat with dunes and well vegetated shrubs, and previous DBCA records are quite old.	**Unlikely** The Survey Areas lacks suitable habitat in terms of sandy coastal habitat with dunes and well vegetated shrubs, and previous DBCA records are quite old.	**Unlikely** The Survey Areas lacks suitable habitat in terms of sandy coastal habitat with dunes and well vegetated shrubs, and previous DBCA records are quite old.	DBCA
Neelaps calonotos	Black-striped snake	P3		This Black-striped Snake is restricted to the sandy coastal strip near Perth, between Mandurah and Lancelin. It occurs on dunes and sandplains vegetated with heaths and eucalypt/banksia woodlands. This species is seriously threatened by increasing development within its restricted distribution (Wilson and Swan, 2013).	**Unlikely** The Survey Areas lacks suitable habitat in terms of sandy coastal habitat with dunes and well vegetated woodlands and sandplains, and previous DBCA records are quite old.	**Unlikely** The Survey Areas lacks suitable habitat in terms of sandy coastal habitat with dunes and well vegetated woodlands and sandplains, and previous DBCA records are quite old.	**Unlikely** The Survey Areas lacks suitable habitat in terms of sandy coastal habitat with dunes and well vegetated woodlands and sandplains, and previous DBCA records are quite old.	DBCA
Euoplos inornatus	Inornate trapdoor spider (northern Jarrah Forest)	P3		Northern Jarrah Forrest vegetation comprises Jarrah-Marri Forest in the west with Bullich and Blackbutt in the valleys grading to Wandoo and Marri woodlands in the east with Powder bark on breakaways. There are extensive but localised sand sheets with Banksia low woodlands. Heath is found on granite rocks and as a common understorey of forests and woodlands in the north and east (DPAW, 2002)	**Highly Unlikely** The Survey Areas lacks suitable habitat and only two confirmed records have been made within 10km of the Survey Areas, with none within the past decade.	**Highly Unlikely** The Survey Areas lacks suitable habitat and only two confirmed records have been made within 10km of the Survey Areas, with none within the past decade.	**Highly Unlikely** The Survey Areas lacks suitable habitat and only two confirmed records have been made within 10km of the Survey Areas, with none within the past decade.	DBCA
Hesperocolletes douglasi	Douglas' Broad-headed Bee	CR	CR	This is a highly localised and endemic bee species that is about the same size as a honeybee (body length approximately 12 mm), generally black and brown and moderately hairy" (Houston 2014). It is a moderate-sized, non-metallic species similar in appearance to bees from the genera Trichocolletes, Paracolletes and Leioproctus (Michener 2007). As with the majority of native bees, this species is solitary, with each female constructing its own nest and rearing its own offspring and male bees playing no part in nest construction or brood care, ground-nesting and univoltine (single generation per year) with the emergence of adult bees timed to coincide with flowering of the food plants. The most recently found specimens were collected on a Pepper and Salt shrub (Philotheca spicata) during a survey of plant-pollinator interaction networks in Banksia woodland remnants in the Swan Coastal Plain (SCP) in the Perth Region for a PhD research project on the spatial energetics of pollination failure in habitat restoration.	**Highly Unlikely** The Survey Areas lacks suitable habitat and no confirmed records have been made within 10km of the Survey Areas.	**Highly Unlikely** The Survey Areas lacks suitable habitat and no confirmed records have been made within 10km of the Survey Areas.	**Highly Unlikely** The Survey Areas lacks suitable habitat and no confirmed records have been made within 10km of the Survey Areas.	PMST
Leioproctus douglasiellus	Native Short-tongued Bee	CR	CR	*Leioproctus douglasiellus*, is a small black bee which belongs to a group of species characterised by short tongues. Female specimens are 8 mm in length, with a wing length of almost 5 mm (DEC, 2009). L. *douglasiellus* is now thought to occur in three locations within the Perth metropolitan area ranging from Cannington to Forrestdale, as reported in the 2006-2008 Rare Native Bee Survey results conducted by the Western Australian Department of Environment and Conservation (DEC) (Swan Region) (DEC, 2009). The current extent of occurrence is 24.3 km2 , the area of occupancy is 0.2 km2 , and there has been an inferred decline of suitable habitat since surveys undertaken in 1954 due to a large portion of the Swan Coastal Plain being significantly altered, especially around the Perth metropolitan area where the only known populations of the species occur (DEC, 2009). Specimens of L. douglasiellus have been collected on two plant species, both of which are on the DEC Priority Flora list: Goodenia filiformis (Priority 3) and Anthotium junciforme (Priority 4) (DEC, 2009).	**Highly Unlikely** The Survey Areas lacks suitable habitat and only two records of the species have been made, both of which have occurred only in high diversity and high biodiversity value wetlands.	**Highly Unlikely** The Survey Areas lacks suitable habitat and only two records of the species have been made, both of which have occurred only in high diversity and high biodiversity value wetlands.	**Highly Unlikely** The Survey Areas lacks suitable habitat and only two records of the species have been made, both of which have occurred only in high diversity and high biodiversity value wetlands.	PMST, DBCA

Species name	Common name	Status		Habitat requirements	LOO – Elizabeth Quay	LOO - Applecross	LOO – Matilda Bay	Source
		State	Federal					
Hylaeus globuliferus	Woolybush bee	P3		Hylaeus globuliferus is known to be associated with Adenanthos cygnorum and Banksia attenuata amongst other native plants (Houston 2018)	**Highly Unlikely** The Survey Areas lacks suitable habitat and only one confirmed record of the species has been made within 10km of the current Survey Areas, which is more than 50 years old.	**Highly Unlikely** The Survey Areas lacks suitable habitat and only one confirmed record of the species has been made within 10km of the current Survey Areas, which is more than 50 years old.	**Highly Unlikely** The Survey Areas lacks suitable habitat and only one confirmed record of the species has been made within 10km of the current Survey Areas, which is more than 50 years old.	DBCA
Idiosoma sigillatum	Swan Coastal Plain shield-backed trapdoor spider	P3		This trapdoor species is native to the Swan Coastal Plain, and favours low lying coastal plain systems, mainly covered with woodlands. Preferred habitats include those dominated by Banksia or Tuart on sandy soils, Casuarina obesa on outwash plains, and paperbark in swampy areas. In the east, the plain rises to duricrusted Mesozoic sediments dominated by Jarrah woodland. (DPAW, 2002)	**Unlikely** Even though the species is known locally from numerous neighbouring woodlands and protected sites within 5km of the Current Survey Areas, the Survey Areas itself lacks suitable habitat of any kind for persistence.	**Unlikely** Even though the species is known locally from numerous neighbouring woodlands and protected sites within 5km of the Current Survey Areas, the Survey Areas itself lacks suitable habitat of any kind for persistence.	**Unlikely** Even though the species is known locally from numerous neighbouring woodlands and protected sites within 5km of the Current Survey Areas, the Survey Areas itself lacks suitable habitat of any kind for persistence.	DBCA
Synemon gratiosa	Graceful Sunmoth	P4		Graceful Sun Moth is associated with two habitat types: Coastal heathland on Quindalup dunes where it is restricted to secondary sand dunes due to the abundance of the preferred host plant *Lomandra maritima*. Targeted surveys by WA DEC in 2010 indicate that Graceful Sun Moth is recorded at substantially higher rates on the *L. maritima* habitat and is therefore more numerous/dense in this coastal habitat (WA DEC 2011). *Banksia* woodland on Spearwood and Bassendean dunes, where the second known host plant *L. hermaphrodita* is widespread. The relative contribution of the *Banksia* woodland (*L. hermaphrodita*) habitat to the total population and area of occupied habitat of the Graceful Sun Moth is small (WA DEC 2011).	**Unlikely** The Survey Areas lacks suitable habitat, and only three recent records have been made within 10km of the Survey Areas.	**Unlikely** The Survey Areas lacks suitable habitat, and only three recent records have been made within 10km of the Survey Areas.	**Unlikely** The Survey Areas lacks suitable habitat, and only three recent records have been made within 10km of the Survey Areas.	DBCA
Westralunio carteri	Carter's freshwater mussel	Vu	Vu	Carter's Freshwater Mussel is usually found in freshwater river pools. They are most common in areas with muddy, silty and sandy bottoms and flowing permanent water. Environmental tolerances of *W. carteri* are not precisely known but they can be found where water temperatures range from 4° C to over 30° C. Formerly this species occurred widely through the southwest including interior rivers of southwest such as Avon, Murray and Blackwood, however Salination of many waterways has severely reduced this species distribution (DCCEEW 2022).	**Highly unlikely** The Survey Areas lacks suitable habitat and all recent nearby records are of translocations at specific, core habitat locations.	**Highly unlikely** The Survey Areas lacks suitable habitat and all recent nearby records are of translocations at specific, core habitat locations.	**Highly unlikely** The Survey Areas lacks suitable habitat and all recent nearby records are of translocations at specific, core habitat locations.	PMST, DBCA

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Appendix B

Black Cockatoo Habitat Assessment (AECOM, 2025)

Prepared for
Public Transport Authority
ABN: 61 850 109 576

Matilda Bay Black Cockatoo Habitat Assessment

11-Aug-2025
Matilda Bay Black Cockatoo Assessment

Art by
Hayley Thompson Farmer

Matilda Bay Black Cockatoo Habitat Assessment

Client: Public Transport Authority

ABN: 61 850 109 576

Prepared by

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Originator	H. Spanswick & J. Swoboda
Checker/s	Luke Rogers
Verifier/s	Tania Liaghati

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Rev	Revision Date	Details	Approved	
			Name/Position	Signature
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Appendix A

Appendix A Bamford Foraging Score Method

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Executive Summary

The Public Transport Authority of Western Australia (PTA) is expanding its existing ferry service, which currently operates between Elizabeth Quay and South Perth. To support this expansion, AECOM Australia Pty Ltd (AECOM) was engaged by the PTA to undertake a Black Cockatoo habitat assessment in accordance with the Department of Agriculture, Water and the Environment (DAWE) black cockatoo referral guideline at the Matilda Bay site (the survey area). The purpose of the assessment was to identify and assess habitat values for three Black Cockatoo species, focusing on the presence and quality of foraging, breeding and night roosting habitats.

A summary of the results is presented below:

- The survey area is within the modelled distribution of the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) (EPBC Act and BC Act Vulnerable) and Carnaby's Cockatoo (*Zanda latirostris*) (EPBC Act and BC Act Endangered). It is outside the modelled distribution of the Baudin's Cockatoo (*Zanda baudinii*) (EPBC Act and BC Act Endangered) however records suggest they may occur.
- The vegetation within the survey area is high quality foraging habitat for the Forest Red-tailed Black Cockatoo due to the presence of favoured foraging species using the federal scoring guideline. It is not considered foraging habitat for the Carnaby's or the Baudin's Cockatoo.
- The refined foraging tool from Bamford suggests that 2.08 ha of Revegetation, Replanting and Parkland areas habitat has a Low and Negligible value for Carnaby's and Baudin's respectively, and Low to Moderate foraging value for Forest Red-tailed Black Cockatoo.
- Foraging evidence of the Forest Red-tailed Black Cockatoo was recorded during the survey.
- The survey area contains 29 potential nesting trees with a diameter at breast height (DBH) greater than 300 mm (noting trees suitable to develop a nest hollow in the future are 300-500 mm DBH (DAWE, 2022)). All trees represent planted mature Eucalypt species in a highly urban environment which is unlikely to be utilised for breeding, described as occurring in 'woodlands and forests' in the DAWE referral guideline.
- No tree hollows of a suitable size, orientation or height above ground level were observed during the assessment.

The Black Cockatoo assessment was completed successfully with no limitations that may influence the ability to assess habitat quality.

1.0 Introduction

1.1 Background

The Public Transport Authority of Western Australia (PTA) is expanding its ferry service, which currently operates between Elizabeth Quay and South Perth. To support this initiative, PTA engaged AECOM Australia Pty Ltd (AECOM) to undertake a Black Cockatoo habitat assessment within the proposal Development Envelope (DE) at the Matilda Bay site (the survey area).

The assessment aimed to identify and evaluate habitat values for the three threatened Black Cockatoo species, with a focus on determining the presence and quality of foraging, breeding, and night roosting habitats within the survey area. The results of this assessment will inform the Environment Protection Authority (EPA) referral documentation and determine whether a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is required. The assessment will be undertaken in accordance with the Commonwealth *Referral guideline for 3 WA threatened black cockatoo species* (DAWE, 2022) and refined using the widely implemented Bamford Consulting Ecologists 2023 tool.

1.2 Location

The DE is 7.17 ha located along Hackett Drive in Matilda Bay, approximately 3 km south of Perth along the Derbal Yerrigan (Swan River), shown in Figure 1.

1.3 Objectives

The objective of the assessment was to define and map Black Cockatoo habitat values present within the survey area. The scope included:

- Review of existing information from previous surveys.
- Undertake a targeted Black Cockatoo habitat assessment.
- Prepare a technical report accompanied by a comprehensive data package.

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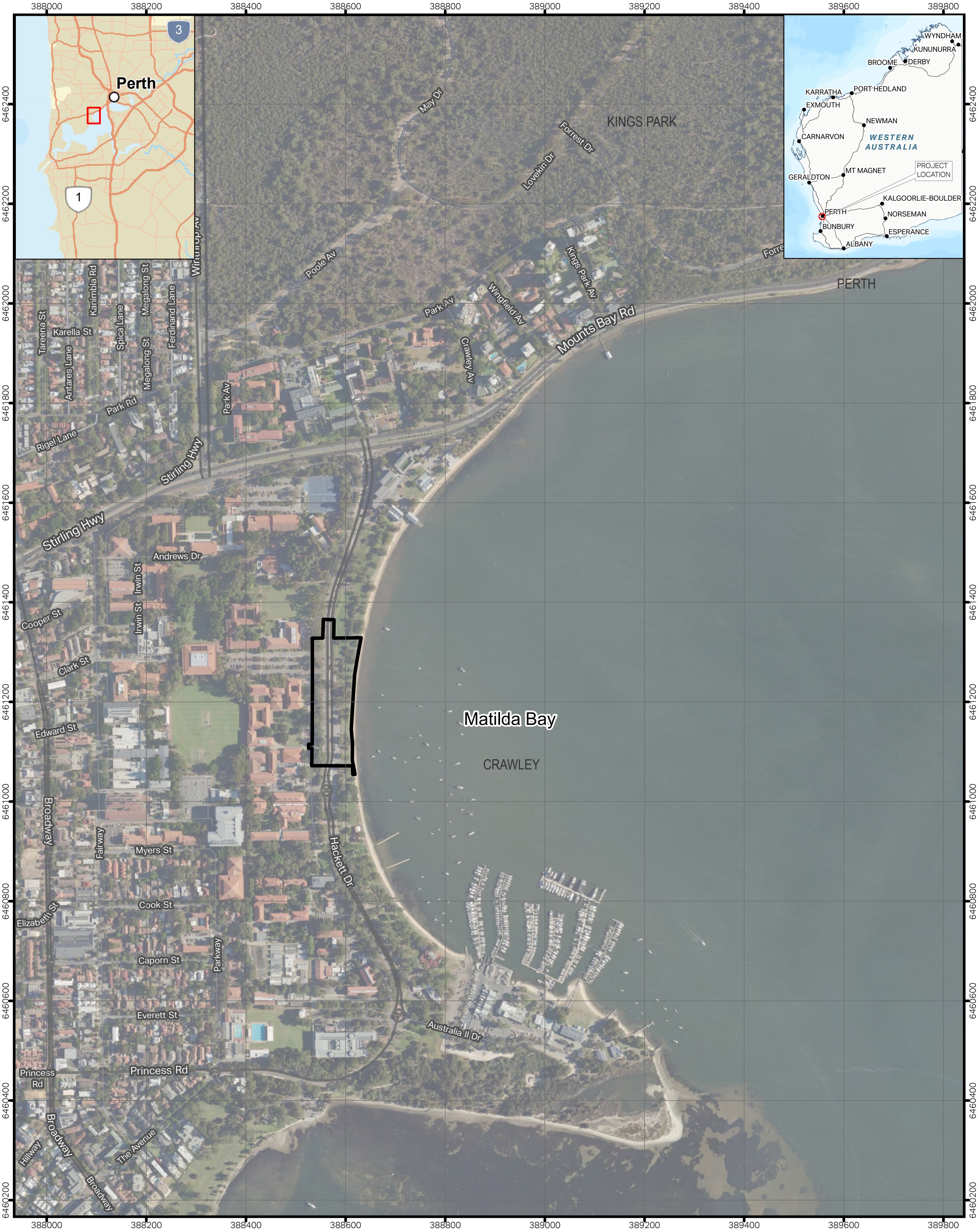
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WESTERN AUSTRALIA
PROJECT LOCATION
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KALGOORLIE-BOULDER
PERTH
NORSEMAN
BUNBURY
ESPERANCE
ALBANY
KINGS PARK
May Dr
Forrest Dr
Lovekin Dr
Winthrop Av
Poole Av
Forrest
PERTH
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Wingfield Av
Park Av
Mounts Bay Rd
Crawley Av
Tareena St
Karella St
Kanimbla Rd
Spica Lane
Megalong St
Ferdinand Lane
Antares Lane
Megalong St
Park Av
Park Rd
Rigel Lane
Stirling Hwy
Stirling Hwy
Andrews Dr
Irwin St
Irwin St
Cooper St
Clark St
Edward St
Matilda Bay
CRAWLEY
Broadway
Fairway
Myers St
Hackett Dr
Cook St
Elizabeth St
Caporn St
Parkway
Everett St
Australia II Dr
Princess Rd
Princess Rd
Broadway
Hillway
The Avenue
Broadway

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LEGEND
▭ Survey Area

Survey Area

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MATILDA BAY BLACK COCKATOO ASSESSMENT

Figure

1

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2.0 Methodology

A field survey was undertaken on 17 July 2025 by Hannah Spanswick and Jasmin Swoboda. Hannah Spanswick has more than 5 years' experience as a zoologist undertaking similar scopes across the Swan Coastal Plain. She holds a Masters of Biological Science (Zoology) and Bachelor of Science (Zoology) and is trained in the refined Black Cockatoo Breeding Methodology by Tony Kirkby and Mike Bamford. Jasmin Swoboda has three years' experience in fauna surveys across WA as part of the fauna technical team at DBCA.

The survey targeted all three threatened Western Australian Black Cockatoo species which are Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*), and the Forest-Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*).

Breeding, foraging and night roosting habitat values were recorded using methodology outlined in the Referral Guidelines for Three Threatened Black Cockatoo Species and the 'Survey guidelines for Australia's threatened birds' (DAWE, 2022; DCCEEW, 2010).

A refined foraging assessment was completed using data collected during the survey based on the Bamford Consulting Ecologists (2020) scoring system which assists in identifying areas of higher quality habitat to assist in impact avoidance.

2.1 Breeding Habitat

Breeding habitat was assessed by quantifying the number of trees that have the potential to form hollows suitable for nesting by Black Cockatoo species. Breeding habitat is defined by DAWE (2022) and includes potential nesting trees (DBH >300 mm), suitable nesting trees (trees with hollows present), and known nesting trees (breeding confirmed). Trees could be part of remnant native vegetation woodland or forests or isolated remnant trees.

All trees with a DBH >300 mm were recorded using hand-held Samsung Tablet devices including the tree location, species, and hollow presence and any additional details relevant to inform the breeding habitat assessment.

Hollows were assessed from the ground.

2.2 Night Roosting Habitat

Night roost habitat was assessed by assessing the presence of known roosting trees and potential roosting trees. Known roosting trees are defined as any tall tree but particularly:

- Baudin's Cockatoo - Jarrah, Flooded Gum, Blackbutt, Tuart and introduced eucalypts Blue Gum (*E. globulus*), Lemon Scented Gum (*Corymbia citriodora*).
- Carnaby's Cockatoo - Flat-topped Yate (*E. occidentalis*), Salmon Gum, Wandoo, Marri, Karri, Blackbutt, Tuart, introduced eucalypts and introduced pines.
- Forest Red-tailed Black Cockatoo - tall Jarrah, Marri, Blackbutt, Tuart and introduced eucalypt trees or large trees on the edges of forests.

Water sources are essential to support night roosting habitat.

2.3 Foraging Habitat

Foraging habitat was assessed using a combination of field observations and contextual information from publicly available databases for roosting and breeding sites (Birdlife Australia, 2018). This dataset is five years' old and does not replace the updated DBCA dataset.

2.3.1 DAWE Foraging Tool

Foraging for the three species is characterised as:

- Baudin's - Primarily seeds of Marri, rarely Jarrah, in woodlands and forest, and seeds of native proteaceous plant species (for example, *Banksia* spp. (includes *Dryandra* spp.) and *Hakea* spp.). During the breeding season feed primarily on native vegetation, particularly Marri (seeds, flowers, nectar and grubs). Also insects and insect larvae; pith of Kangaroo Paw (*Anigozanthos flavidus*);

tips of *Pinus* spp.; *Macadamia* spp., almonds and pecans; seeds of apples and pears; and persimmons.

- Carnaby's – Native shrubland, kwongan heathland and woodland on seeds, flowers and nectar of native proteaceous plant species (Banksia spp., *Hakea* spp. and *Grevillea* spp.), as well as Callistemon spp. and Marri. Also seeds of introduced species including *Pinus* spp., *Erodium* spp., wild radish, canola, almonds, macadamia and pecan nuts; insects and insect larvae; occasionally apples and persimmons; and liquidambar.
- Forest Red-tailed Black Cockatoo – Primarily seeds of Jarrah and Marri in woodlands and forest, and edges of Karri forests, including Wandoo and Blackbutt. Forages on Allocasuarina cones, fruits of Snottygobble (*Persoonia longifolia*) and Mountain Marri (*C. haematoxylon*). Other less important foods include Blackbutt, Bullich, *Allocasuarina fraseriana*, *Hakea* spp., Tuart, Redheart Moit (*E. decipiens*) and Bushy Yate (*E. lehmanni*). Also some introduced eucalypts such as River Red Gum (*E. camaldulensis*) and Rose Gum (E. grandis). On the Swan Coastal Plain, often feeds on introduced Cape Lilac (Melia *azedarach*), *E. caesia, E. erythrocorys*, Lemon-scented Gum and Kaffir Plum (*Harpephyllum caffrum*).

The foraging quality scoring tool developed by DAWE (2022) incorporates site condition, site context and species stocking rate, and applies a single score to a defined survey area provided it is larger than 1 ha. The DAWE (2022) foraging tool was applicable for the survey area which is 3.94 ha. The scoring tool is defined in Table A1 of the DAWE (2022) guideline.

2.3.2 Bamford Refined Foraging Tool

The Bamford Consulting Ecologists (2020) scoring system (Table 3) was applied to further inform quality foraging habitat mapping. This method assists in defining areas of high/medium/low quality based on specific fauna habitat features present rather than applying a single score to a survey area. This assessment is limited to the 2018 Birdlife Australia dataset to inform site context and species density. The details are in Appendix A.

3.0 Results

3.1 Breeding Habitat

Twenty-nine potential nesting trees with an appropriate DBH > 300mm were recorded within the survey area (Table 1). Trees included six Lemon-scented Gums, one Powderbark Wandoo, one Flooded Gum and 21 planted Eucalypt trees.

No suitable hollows were observed during the survey therefore no suitable breeding trees were recorded. Trees are mapped in Figure 2.

Table 1 Potential nesting trees with a DBH (>300 mm) within the DE

Species	Tree Height (m)	DBH (cm)
Lemon-scented gum (*Corymbia citriodora*)	15-20m	70
Lemon-scented gum (*Corymbia citriodora*)	15-20m	49
Lemon-scented gum (*Corymbia citriodora*)	15-20m	57
Lemon-scented gum (*Corymbia citriodora*)	15-20m	95
Lemon-scented gum (*Corymbia citriodora*)	10-15m	33
Lemon-scented gum (*Corymbia citriodora*)	15-20m	47
Non-native planted tree	15-20m	69
Non-native planted tree	5-10m	123
Non-native planted tree	15-20m	61
Non-native planted tree	10-15m	49
Non-native planted tree	15-20m	140
Non-native planted tree	15-20m	62
Non-native planted tree	15-20m	93
Non-native planted tree	10-15m	43
Flooded Gum (*Eucalyptus rudis*)	15-20m	128
Non-native planted tree	15-20m	65
Non-native planted tree	15-20m	81
Non-native planted tree	10-15m	115
Non-native planted tree	15-20m	66
Non-native planted tree	15-20m	57
Non-native planted tree	10-15m	70
Non-native planted tree	15-20m	55
Non-native planted tree	15-20m	51
Non-native planted tree	15-20m	63
Non-native planted tree	15-20m	79
Non-native planted tree	20-25m	97
Non-native planted tree	20-25m	93
Non-native planted tree	5-10m	30
Powderbark Wandoo (*Eucalyptus accedens*)	10-15m	45

3.2 Night Roosting Habitat

No evidence of night roosting was observed in the survey area. There are known roosting sites within 2 km of the survey area. There were seven trees recorded as more than 20 m tall that could be classified as “tall trees”.

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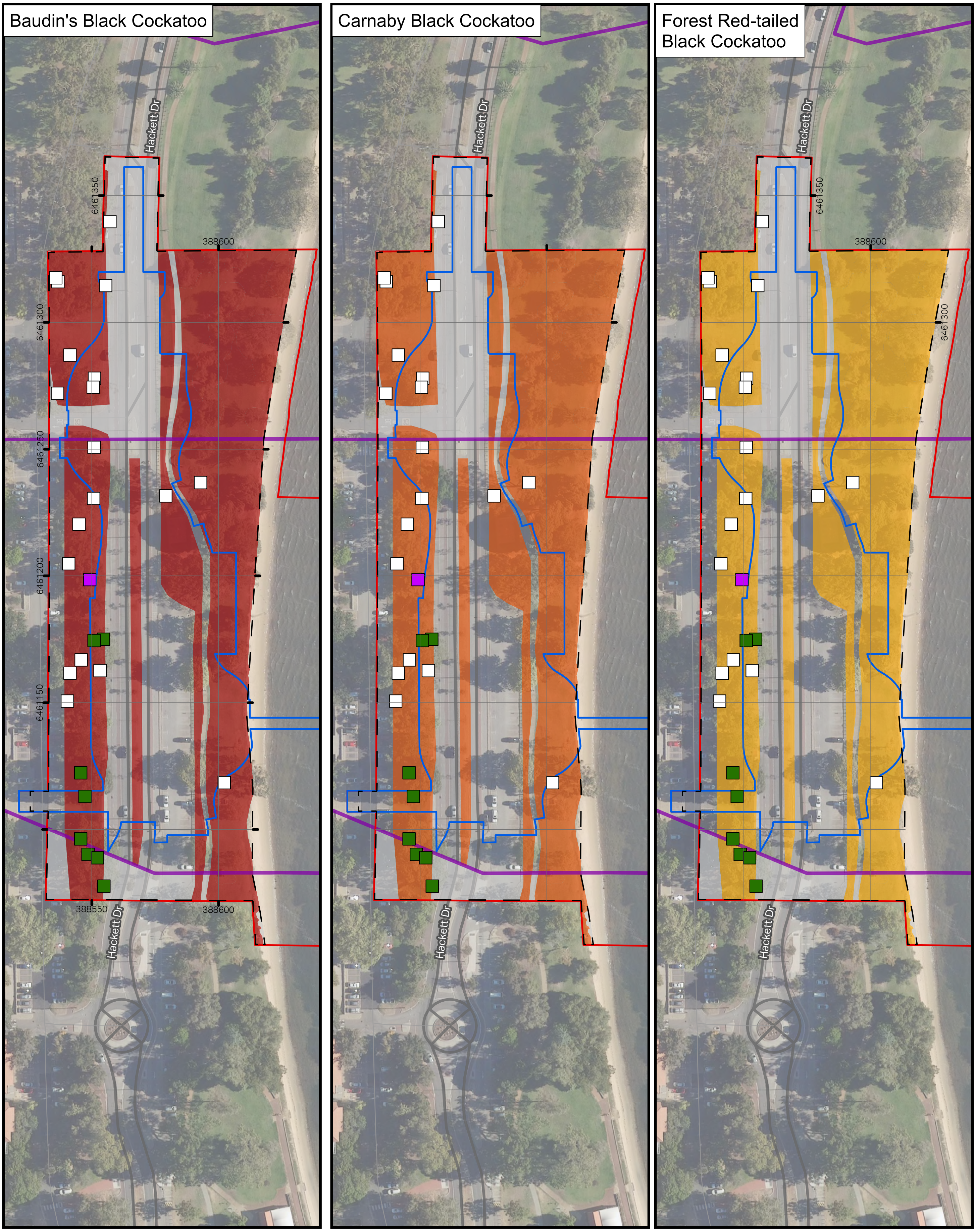

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LEGEND

- 🟥 Development Envelope
- 🟦 Indicative Disturbance Footprint
- ⌐ Survey Area (AECOM, 2025)
- ▬ Survey Area (GHD)

Species (DBH in cm Labelled)

- ■ Powderbark Wandoo (*Eucalyptus accedens*)
- 🟩 Lemon-scented gum (*Corymbia citriodora*)
- ☐ Other

Black Cockatoo Foraging Quality

- ■ None
- ■ Negligible
- ■ Low
- ■ Low to Moderate
- ■ Moderate
- ■ Moderate to High
- ■ High

Black Cockatoo Foraging and Breeding Habitat

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MATILDA BAY BLACK COCKATOO ASSESSMENT

Figure

2

3.3 DAWE Foraging Habitat

The survey area has been assessed as providing no foraging quality habitat for Baudin’s and Carnaby’s Cockatoo. The survey area lacks any ‘native vegetation including roadsides and parkland cleared’. The scattered mature trees present in the survey area do not represent native vegetation that has been historically cleared but planted native and introduced species for landscaping. The scattered trees include two “native” individuals which were likely planted (one Flooded Gum and one Powderbark Wandoo). These trees are not listed in Table 1 of the DAWE (2022) referral guidelines as preferred foraging species.

The survey area is considered High quality foraging quality for the Forest Red-tailed Black Cockatoo. There are eight suitable foraging tree species present; the Lemon-Scented Gum, Wandoo and Flooded Gum, all listed in Table 1 of the DAWE (2022) guideline. Evidence of Forest Red-tailed Black Cockatoo foraging was recorded at two locations directly adjacent to the survey area. This included foraging on an isolated Marri tree less than 5 m north of the survey area (Plate 1). No foraging evidence for Baudin’s or Carnaby’s Cockatoo was observed.

The DAWE (2022) foraging score tool results are presented in Table 2.

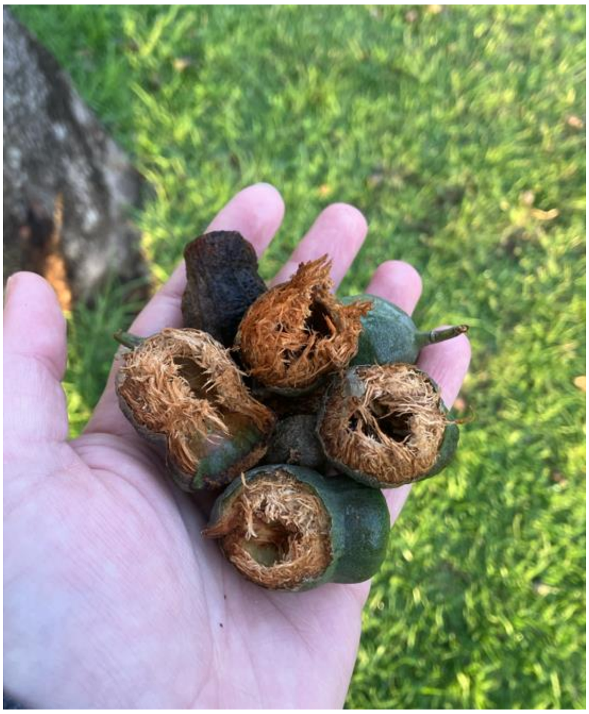

Plate 1 Forest Red-tailed Black Cockatoo foraging evidence

Table 2 Black Cockatoo foraging habitat quality scores for the survey area in accordance with DAWE (2022)

Starting Score		**Baudin’s Cockatoo (*Zanda baudinii*)**		**Carnaby’s Cockatoo (*Zanda latirostris*)**		**Forest Red-Tailed Black Cockatoo (*Calyptorhynchus banksii naso*)**	
10		Start at a score of 10 if your site is native eucalypt woodlands and forest, and proteaceous woodland and heath, particularly Marri, within the range of the species, including along roadsides and parkland cleared areas. Can include planted vegetation. No suitable foraging species present.		Start at a score of 10 if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as *Banksia* spp. (including *Dryandra* spp.), *Hakea* spp. and *Grevillea* spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation. No suitable foraging species present.		Start at a score of 10 if your site is Jarrah or Marri woodland and/or forest, or if it is on the edge of Karri Forest, or if Wandoo and Blackbutt occur on the site, within the range of the subspecies, including along roadsides and parkland cleared areas. Arguably according to Table 1 of the Referral Guideline, Lemon Scented-Gum represents foraging habitat. Survey area supports 13 suitable foraging trees and foraging evidence recorded.	
Attribute	Sub-tractions	Context adjustor (attributes reducing functionality of foraging habitat).					
Foraging potential	**-2**	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	☒	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	☒	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	☐
Connectivity	**-2**	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	☐	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	☐	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	☐
Proximity to breeding	**-2**	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.	☐	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.	☐	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.	☐

Starting Score		**Baudin's Cockatoo (*Zanda baudinii)***		**Carnaby's Cockatoo (*Zanda latirostris)***		**Forest Red-Tailed Black Cockatoo *(Calyptorhynchus banksii naso)***	
Proximity to roosting	**-1**	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	☐	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	☐	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	☐
Impact from significant plant disease	**-1**	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	☐	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	☐	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50%of the preferred food plants present.	☐
Total score		**-2**		**-2**		**10**	

3.4 Bamford Foraging Habitat

The refined Bamford Consulting Ecologists (2020) foraging habitat assessment considered known breeding and roosting sites and characteristics of each fauna habitat type. The following key factors influenced the results:

- Site condition for Carnaby’s and Baudins’ was considered ‘1’ representing “scattered specimens of known food plants but projected foliage cover of these is <2%”.
- Site context is 0 for all three species as existing vegetation represents <1% of available habitat within 12 km and local breeding is unlikely.
- Confirmed roosting sites for Forest-Red tailed Black Cockatoo and Carnaby’s Cockatoo exist in Kings Park and within two kilometres of the survey area. Foraging evidence was recorded for Forest Red-tailed Black Cockatoo. Stocking rate has therefore been scored as ‘1’ for these species. Baudin’s is unlikely to occur therefore stocking rate is ‘0’.
- Kings Park provides suitable foraging habitat for all three Black Cockatoo species.

Based on the assumptions above, the Revegetation, Replanting and Parkland areas (mapped for 2.08 ha) were rated as Low and Negligible for Carnaby’s Cockatoo and Baudin’s Cockatoo respectively. This habitat was scored Low to Moderate for Forest Red-tailed Black Cockatoos influenced largely by the presence of suitable foraging species (Lemon-scented Gum, Powerbark Wandoo and Flooded Gum).

Foraging scores are shown in Table 3 and mapped in Figure 2.

Table 3 Matilda Bay survey area refined foraging habitat assessment (Bamford Consulting Ecologists, 2020).

Fauna Habitat	**Forest Red-tailed Black Cockatoo**				**Baudin's Cockatoo**				**Carnaby's Cockatoo**			
	Site Condition	Site Context	Stocking Rate	**Total Score**	Site Condition	Site Context	Stocking Rate	**Total Score**	Site Condition	Site Context	Stocking Rate	**Total Score**
Cleared	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
Wetland Shoreline	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
Revegetation, Replanting and Parkland	2	0	1	**3**	1	0	0	**1**	1	0	1	**2**

4.0 Discussion

4.1 Black Cockatoo Known Distribution

The survey area is on the Swan Coastal Plain region and lies within the modelled distribution of the Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo (DAWE, 2022). Carnaby's Cockatoos are known to forage across the Swan Coastal Plain region, with localised breeding potentially occurring between July and December. Forest Red-tailed Black Cockatoos are known to both breed and forage within the Swan Coastal Plain, including the Perth Metropolitan Area. In contrast, Baudin's Cockatoos are less commonly recorded in the western portion of the Swan Coastal Plain, and their presence in the survey area is considered unlikely based on current distribution modelling (DAWE, 2022).

4.2 Breeding Habitat

Twenty-nine potential nesting trees were identified, none supporting hollows suitable for potential breeding. The survey area supports scattered native species including a Flooded Gum and a Wandoo tree amongst planted Eucalyptus and Lemon-scented Gums. Despite many trees exceeding the 300 mm DBH threshold outlined in DAWE (2022) guidelines, the absence of hollows suggests limited breeding habitat value, and future hollow development is considered unlikely.

Black Cockatoos are known to breed in woodland or forest, partially cleared areas and isolated trees. For this reason the breeding value cannot be entirely discounted. However, isolated trees are likely to refer to trees in paddocks in proximity to woodlands and forests rather than landscaped corridors in a heavily urban environment.

4.3 Foraging Habitat

The survey area has no foraging quality for Baudin's or Carnaby's using the DAWE (2022) guidelines. The area is considered 'high quality' for Forest Red-tailed Black Cockatoos based on the presence of suitable foraging trees and foraging evidence present.

Similarly, the Bamford scoring tool determined that the "Revegetation, Replanting and Parkland" fauna habitat provides low or negligible foraging quality for Baudin's and Carnaby's Cockatoo respectively, and Low to Moderate quality foraging for Forest Red-tailed Black Cockatoos. This again was influenced by the lack of suitable foraging species for the former two Cockatoo species, while evidence of use was recorded for Forest Red-tailed Black Cockatoo.

The survey area represents a narrow corridor of planted native and introduced mature tree species. It is not anticipated that Cockatoos would utilise this as significant foraging habitat taking into account the prevalence of preferred foraging species in Kings Park remnant native vegetation.

The presence of feeding debris from Forest Red-tailed Black Cockatoo supports their use of the area, while the absence of evidence for the other species may reflect habitat limitations or seasonal variability.

4.4 Night Roosting Habitat

Roosting potential within the survey area and surrounding area is supported by the presence of suitable tree species (e.g. *Corymbia citriodora)*, proximity to water and confirmed roosting sites within 1.5 km of the survey area. However, at a landscape scale, the removal of these trees is unlikely to significantly impact black cockatoo populations, given the presence of 36 known roosting sites within a 20 km radius (DBCA, 2019a). This broader context suggests that while the survey area may offer some roosting value, its contribution to regional habitat availability is relatively minor.

5.0 Conclusion

Habitat loss, particularly the loss of breeding habitat, is widely recognised as the most significant threat to the recovery of all three threatened black cockatoo species (DEC, 2008). This is largely due to the scarcity of mature native trees capable of forming suitable nesting hollows, compounded by ongoing clearing of remnant habitat. Current guidance from (DAWE, 2022) strongly recommends avoiding the removal of potential breeding habitat and protecting foraging resources, particularly in proximity to any nesting habitat.

According to DAWE (2022) guidelines, the Swan Coastal Plain provides critical foraging habitat and the focus is to maintain viable foraging resources to ensure the survival of the species. Foraging values were low to negligible for Carnaby’s and Baudins and Low to Moderate for Forest Red-tailed Black Cockatoo. This reflects the limited ecological value of scattered trees compared to intact bushland. Feeding debris from Forest Red-tailed Black Cockatoos was observed, supporting their use of the area, but no evidence was found for Carnaby’s or Baudin’s Cockatoos. These Cockatoo may fly over the area but are unlikely to utilise it.

Most trees within the survey area are planted Eucalypt species, and no suitable breeding hollows were identified. Although some trees exceed the DBH threshold for potential nesting habitat, their non-native status and lack of hollows suggest low breeding suitability. A small number of native species (Tuart and Flooded Gum) were observed outside the survey area.

In summary, while the survey area lies within the known distribution range of all three Black Cockatoo species, the habitat within the survey area is unlikely to represent critical breeding or foraging habitat.

6.0 References

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Appendix A

Appendix A Bamford Foraging Score Method

1.0 Bamford Consulting Ecologists (BCE) Black Cockatoo Scoring System

1.1 Introduction

Application of the Offset Assessment Guide (offsets guide) developed by the federal environment department for assessing Black-Cockatoo foraging habitat requires the calculation of a score out of 10. The following system has been developed by Bamford Consulting Ecologists (BCE) with assistance from Quessentia Consulting to provide an objective scoring system that is practical and can be used by trained field zoologists with experience in the environments frequented by the species.

The foraging value score provides a numerical value that reflects the significance of vegetation as foraging habitat for Black-Cockatoos, and this numerical value is designed to provide the information needed by the Federal Department of Agriculture, Water and the Environment (DAWE) to assess impact significance and offset requirements. The foraging value of the vegetation depends upon the type, density and condition of trees and shrubs in an area and can be influenced by the context such as the availability of foraging habitat nearby. The BCE scoring system for value of foraging habitat has three components as detailed above. These three components are drawn from the DAWE offsets guide but the scoring approach was developed by BCE and includes a fourth (moderation) component.

Note that the scoring system can only be applied within the range of the species or at least where the species could reasonably be expected to occur based upon existing information.

Calculating the total score (out of 10) requires the following steps:

a. Site condition. Determining a score out of six for the vegetation composition, condition and structure; plus

b. Site context. Determining a score out of three for the context of the site; plus

c. Species stocking rate. Determining a score out of one for species density.

d. Determining the total score out of 10, which may require moderation for context and species density with respect to the site condition (vegetation) score. Moderation also includes consideration of pine plantations as a special case for foraging value.

The BCE scoring system places the greatest weight on site condition (scale of 0 to 6) because this has the highest influence on the foraging values of a site, which in turn is the fundamental driver in meeting ecological requirements for continued survival.

Site context has a lower weight (scale of 0 to 3) in recognition of the mobility of the species, which means they can access good foraging habitat even in fragmented landscapes, but allowing for recognition of the extent of available habitat in a region and context in relation to activity (such as breeding and roosting). The application of scoring site context is further discussed below.

Species stocking rate is given a low weight (0 to 1) as it is a means only of recognising that a species may or may not be abundant at a site, but that abundance is dependent upon site condition and context and is thus not an independent variable. The abundance of a species is also sensitive to sampling effort, and to seasonal and annual variation, and is therefore an unreliable indicator of actual importance of a site to a species.

Calculation of scores and the moderation process are described in detail below.

1.2 Site Condition

Table 1 Site Condition: Vegetation Composition, Condition and Structure Scoring

Site Score	Description of Vegetation Values		
	Carnaby’s Black Cockatoo	**Baudin’s Black Cockatoo**	**Forest Red-tailed Black Cockatoo**
0	No foraging value. No Proteaceae, eucalypts or other potential sources of food. Examples: • Water bodies (e.g. salt lakes, dams, rivers); • Bare ground; • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits) or with vegetation of no food value, such as some suburban landscapes. • Mown grass	No foraging value. No eucalypts or other potential sources of food. Examples: • Water bodies (e.g. dams, rivers); • Bare ground; • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).	No foraging value. No eucalypts or other potential sources of food. Examples: • Water bodies (e.g. dams, rivers); • Bare ground; • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits)
1	Negligible to low foraging value. Examples: • Scattered specimens of known food plants but projected foliage cover of these is < 2%. This could include urban areas with scattered foraging trees; • Paddocks that are lightly vegetated with melons or other known food-source weeds (e.g. Erodium spp.) that represent a short-term and/or seasonal food source; • Blue Gum plantations (foraging by Carnaby’s Black-Cockatoos has been reported but appears to be unusual).	Negligible to low foraging value. Scattered specimens of known food plants but projected foliage cover of these < 1%. This could include urban areas with scattered foraging trees.	Negligible to low foraging value. Scattered specimens of known food plants but projected foliage cover of these < 1%. Could include urban areas with scattered foraging trees.
2	Low foraging value. Examples: • Shrubland in which species of foraging value, such as shrubby banksias, have <10% projected foliage cover; • Woodland with tree banksias 2-5% projected foliage cover; • Open eucalypt woodland/mallee of small-	Low foraging value. Examples: • Woodland with scattered specimens of known food plants (e.g. Marri and Jarrah) 1-5% projected foliage cover; • Urban areas with scattered foraging trees.	Low foraging value. Examples: • Woodland with scattered specimens of known food plants (e.g. Marri, Jarrah or Sheoak) 1-5% projected foliage cover; • Urban areas with scattered food plants such as Cape Lilac, *Eucalyptus caesia* and *E. erythrocorys*.

Site Score	Description of Vegetation Values		
	Carnaby's Black Cockatoo	Baudin's Black Cockatoo	Forest Red-tailed Black Cockatoo
	• fruited species; • Paddocks that are densely vegetated with melons or other known food-source weeds (e.g. Erodium spp.) that represent a short-term and/or seasonal food source.		
3	Low to Moderate foraging value. Examples: • Shrubland in which species of foraging value, such as shrubby banksias, have 10-20% projected foliage cover; • Woodland with tree banksias 5-20% projected foliage cover; • Eucalypt Woodland/Mallee of small-fruited species; • Eucalypt Woodland with Marri < 10% projected foliage cover	Low to Moderate foraging value. Examples: • Eucalypt Woodland with known food plants (especially Marri) 5-20% projected foliage cover; • Parkland-cleared Eucalypt Woodland/Forest with known food plants 10-40% projected foliage cover (poor long-term viability without management); • Younger areas of (managed) revegetation with known food plants 10-40% projected foliage cover (establishing food sources with good long-term viability).	Low to Moderate foraging value. Examples: • Eucalypt Woodland with known food plants (especially Marri and Jarrah) 5-20% projected foliage cover; • Parkland-cleared Eucalypt Woodland/Forest with known food plants 10-40% projected foliage cover (poor long-term viability without management); • Younger areas of (managed) revegetation with known food plants 10-40% projected foliage cover (establishing food sources with good long-term viability).
4	Moderate foraging value. Examples: • Woodland/low forest with tree banksias (of key species B. attenuata and B. menziesii) 20-40% projected foliage cover; • Kwongan/ Shrubland in which species of foraging value, such as shrubby banksias, have 20-40% projected foliage cover; • Eucalypt Woodland/Forest with Marri 20-40% projected foliage cover.	Moderate foraging value. Examples: • Marri-Jarrah Woodland/Forest with 20-40% projected foliage cover; • Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. • Eucalypt Woodland/Forest with diverse, healthy understorey and known food trees (especially Marri) 10-20% projected foliage cover. • Orchards with highly desirable food sources (e.g. apples, pears, some stone fruits).	Moderate foraging value. Examples: • Marri-Jarrah Woodland/Forest with 20-40% projected foliage cover; • Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths; • Sheoak Forest with 40-60% projected foliage cover.

Site Score	Description of Vegetation Values		
	Carnaby's Black Cockatoo	Baudin's Black Cockatoo	Forest Red-tailed Black Cockatoo
5	Moderate to High foraging value. Examples: • Banksia Low Forest (of key species B. attenuata and B. menziesii) with 40-60% projected foliage cover; • Banksia Low Forest (of key species B. attenuata and B. menziesii) with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths; • Pine plantations with trees more than 10 years old (but see pine note below in moderation section).	Moderate to High foraging value. Examples: • Marri-Jarrah Forest with 40-60% projected foliage cover; • Marri-Jarrah Forest with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths.	Moderate to High foraging value. Examples: • Marri-Jarrah Forest with 40-60% projected foliage cover; • Marri-Jarrah Forest with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. • Sheoak Forest with > 60% projected foliage cover.
6	High foraging value. Example: • Banksia Low Forest (of key species B. attenuata and B. menziesii) with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term).	High foraging value. Example: • Marri-Jarrah Forest with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term).	High foraging value. Example: • Marri-Jarrah Forest with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term).

Vegetation structural class terminology follows Keighery (1994).

1.3 Site Context

Site Context is a function of site size, availability of nearby habitat and the availability of nearby breeding areas. Site context includes consideration of connectivity, although Black-Cockatoos are very mobile and will fly across paddocks to access foraging sites. Based on BCE observations, Black-Cockatoos are unlikely to regularly go over open ground for a distance of more than a few kilometres and prefer to follow tree-lines.

The maximum score for site context is 3, and because it is effectively a function of presence/absence of nearby breeding and the distribution of foraging habitat across the landscape, the following table, developed by Bamford Consulting in conjunction with DEE, provides a guide to the assignation of site context scores. Note that 'local area' is defined as within a 15 km radius of the centre point of the study site. This is greater than the maximum distance of 12km known to be flown by Carnaby's Black-Cockatoo when feeding chicks in the nest.

Table 2 Site Context Weighting

Site Context Score	Percentage of the existing native vegetation within the 'local' area that the study site represents	
	'Local' breeding known/likely	'Local' breeding unlikely
3	>5%	>10%
2	1-5%	5-10%
1	0.1-1%	1-5%
0	<0.1%	<1%

The table above provides weighting for where nearby breeding is known (or suspected) and for the proportion of foraging habitat within 15km represented by the site being assessed. Some adjustments may be needed based on the judgement of the assessor and in relation to the likely function of the site. For example, a small area of foraging habitat (e.g. 0.5% of such habitat within 15km) could be upgraded to a context of 2 if it formed part of a critical movement corridor. In contrast, the same sized area of habitat, of the same local proportion, could be downgraded if it were so isolated that birds could never access it.

1.4 Species Density (Stocking Rate)

Species stocking rate is described as "the usage and/or density of a species at a particular site" in the offsets guide. The description also implies that a site supports a discrete population, which is unlikely in the case of very mobile black-cockatoos. Assignation of the species density score (0 or 1) is based upon the black-cockatoo species being either abundant or not abundant. A score of 1 is used where the species is seen or reported regularly and/or there is abundant foraging evidence.

Regularly is when the species is seen at intervals of every few days or weeks for at least several months of the year. A score of 0 is used when the species is recorded or reported very infrequently and there is little or no foraging evidence. Where information on actual presence of birds is lacking, a species density score can be assigned by interpreting the landscape and the site context. For example, a site with a moderate condition score that is part of a network of such habitat where a black-cockatoo species is known would get a species density score of 1 even without clear presence data, while a species density score of 0 can be assigned to a site where the level of usage can confidently be predicted to be low.

1.5 Moderation of scores for the calculation of a value out of 10

The calculation out of 10 requires the vegetation characteristics (out of 6) to be combined with the scores given for context and species density. It is considered that the context and density scores are not independent of vegetation characteristics, otherwise habitat of absolutely no value for black-cockatoo foraging (such as concrete or a wetland) could get a foraging score out of 10 as high as 4 if it occurred in an area where the species breed (context score of 3) and are abundant (species density score of 1). Similarly, vegetation of negligible or low characteristics which could not support black-cockatoos could be assigned a score as high as 6 out of 10. In that case, the score of 6 would be more a reflection of nearby vegetation of high characteristics than of the foraging value of the negligible to low scoring vegetation. The Black-Cockatoos would only be present because of vegetation of high characteristics, so applying the context and species density scores to vegetation of low characteristics would not give a true reflection of their foraging value.

For this reason, the context and species density scores need to be moderated for the vegetation characteristic score to prevent vegetation of little or no foraging value receiving an excessive score out of 10. A simple approach is to assign a context and species density score of zero to sites with a Condition score of low (2), negligible (1) or none (0), on the basis that birds will not use such areas unless they are adjacent to at least low-moderate quality foraging habitat (>3). The approach to calculating a score out of 10 can be summarised as follows:

Table 3 Moderation of scores

Vegetation composition, condition and structure score (out of 6)	Context score	Species density score
3-6 (low/moderate to high value)	Assessed as per Section 1.3 above	Assessed as per Section 1.4 above
0-2 (no to low value)	0	0

Note that this moderation approach may require interpretation depending on the context. For example, vegetation with a condition score of 2 could be given a context score of 1 under special circumstances. Such as when very close to a major breeding area or if strategically located along a movement corridor.

Quality scores are described as outlined in Table 4.

Table 4 Scores and descriptions

Description	Overall Score
None	0
Negligible	1
Low	2
Low to Moderate	3
Moderate	4
Moderate	5
Moderate	6
Moderate to High	7
High	8